The Builder.

VOL. XVIII.—No. 909.

The British Association, at Oxford.—Efforts to Raise the Condition of the Working Classes.

THE meeting of the British Association for the Advancement of Science, just ended, has been productive of the usual amount of matter professionally important to us, and of much that would be interesting to all our readers. To some of the questions we can do little more than refer,—as those of the Antiquity of the Human Race, which could not have found a more appropriate place for discussion, than the university where science seems to have at length succeeded in obtaining *status* as a pursuit side by side with theology and classical learning. We shall give notes of some of the papers on the subjects that more immediately concern us, and reference to others which may perhaps be published in the Transactions of the Association.

The selection of Oxford this year, as the meeting place, was altogether a happy one; and will do much to confirm the tendency observable in the University, of late years, towards several objects. The Museum is now so far progressed to completion that it was opened for the *conversazioni*; and it is one of the most considerable efforts the University has made in a similar number of years by building,—though collections and libraries, even such as are devoted specially to science, the University possessed (as well as works of art), no less than institutions of a different character. Architectural *art* is forcing its way through the antiquarianism or reproduction still somewhat prevalent in new buildings of the colleges; and the commencement of an effort to promote the work of education amongst classes beyond the precincts of the University, has been made. Persons qualified to judge, say that opposition to what is called the spirit of the age does not exist, unless with undergraduates. Whatever the branch of pursuit, Oxford now offers educational advantages, the amount of which must surprise one who visits the libraries and collections for the first time; and though the nature of the stone has prevented the preservation of much that would have been now interesting in the details of architecture, abundance of this is left, as well as a beauty of "old patrician trees," of shaded walks by waterside, and of lawns and gardens, which no other place in the world possesses combined with and enhancing so large an amount of architectural beauty, and enhanced by so much as there is of antiquarian interest, or associations with the place. To the true architect, the relics of work of his art in Oxford are by no means confined to the buildings of Mediæval origin. Inigo Jones is represented there, as by manuscript notes to books preserved in the library of Worcester College, and by gateways (though not the best of his works, but amongst the most interesting) in the Botanic Garden; Wren is identified with the University, almost as much as with London; and, besides his buildings, five volumes of his drawings are preserved; whilst the Radcliffe Library, by Gibbs, is a fine work, decoratively considered, as well as structurally,—the vestibule forming the lower story is one of the best pieces of domical vaulting in existence. Much has been said, both of the distant effect of Oxford, and of the principal street as a lesson of street-architecture. In both cases, the reference is justified, and might still afford hints,—in the former case, towards elucidation of the question of effect from forms of two very different styles, occurring in the same field of view; and in the latter, in many ways, towards the production of what is wanted in London. The present entrance to Oxford from the railway, however, is disappointing; and only on entering from the opposite side, or over the bridge by Magdalen College, does the stranger realize the beauty of the combined architecture and foliage, of the curving street, and of the groups and succession of buildings. The important part in this effect, played by Queen's College, a building good in masses, but somewhat plain in details, is worthy of attention; as also is the value of the clear atmosphere generally, and of the not smoke-encrusted stone of a considerable number of the buildings. It is not difficult to understand why, in attention paid to architecture, the *art* alone, or what is most valuable, is not now appreciated as deserved. Though this art-subject is enticing; and though there is much in Museum building structurally, and in the other new buildings decoratively, that might at another time be spoken of with advantage, it was the object with which we commenced, to chronicle some of the proceedings of the Association. To that subject, therefore, we return.

The chair was taken, in the Sheldonian Theatre, by the Prince Consort, on Wednesday in last week, when he briefly addressed the meeting, and resigned the presidency to Lord Wrottesley. The address of the new president related chiefly to the science in which he has become eminent; but noticed the progress made in some other branches of inquiry. In 1814, when Lord Wrottesley's residence in the University commenced, science was represented by the geologists chiefly, as Buckland, Broderip, the two Conybeares, and Kidd; though there were chemical lectures by the last of those named, and some on experimental philosophy by Rigaud. The Radcliffe Observatory was inactive. After 1818, the mathematical branches of study improved, and others were not neglected; and in 1839 a good appointment was made to the office of Radcliffe Observer. The progress continued till at length a sum approaching to 100,000*l.* had been expended on the New Museum. The president then adverted to the repeal of the statute which enforced attendance on two courses of lectures, and to the rejection of a proposal that the undergraduate, after passing his first two classical examinations, should be permitted to select his own line of study, both which decisions he did not approve of. After alluding to the Middle Class Examinations, he passed to the subject of astronomy. Treating of this, he showed the respective advantages of the labour undertaken in observatories, public and private, and noticed the speculations on the nature of comets and of the sun, and the existence of an interplanetary ether. He also spoke of the management of the Parliamentary grant to the Royal Society, as an example, and of the importance of such aid to investigation. He then passed to a notice of the principal results of research in the science of chemistry, especially regarding the processes of substitution, or displacement of one element or organic group by another more or less analagous; and he mentioned some practical applications, as those in the dyes extracted from aniline for the colour known as mauve and others. These processes, we may mention, were subsequently referred to in the chemical section, as well as investigations also referred to by the president, on the nature of ozone. Respecting the antiquity of man, the opinion originally published by M. Boucher de Perthes in 1847, relative to the remains in the valley of the Somme, had been confirmed since last year. Flint implements found were as ancient as a mass of gravel which filled the lower parts of the valley between Abbeville and Amiens. The gravel is an ancient fluviatile alluvium, by no means confined to the lowest depressions; and changes in the physical geography, comprising both the filling up with sediment and drift, and the partial re-excavation of the valley, must have followed since old river beds were at some former periods the receptacles of the worked flints. The old alluvium, whether at higher or lower levels, consists not only of the gravel with the worked flints, but also of superimposed beds of sand and loam, in which are many fresh-water and land shells of species now existing; but with the shells, are found bones of extinct animals. The same bones are found sometimes in the gravel. After some further statements, respecting discovery of bones elsewhere, elucidatory of the same subject, and a reference to the progress of physiology, the address concluded with an eloquent peroration.

The most interesting subject in the address just mentioned, was referred to in papers in the geological, the zoological and botanical, and the geographical and ethnological sections. One of these papers, by Dr. James Hunt, in the section last-named, led to a most animated discussion. So far as we have been able to ascertain, none of the preceedings in the sections are properly reported. The loss through the omission is very great; as the discussions often supply matter as valuable as that of the paper, and sometimes what is necessary to correction of statements contained in it. As it is impossible to be in two places at once, or even to ascertain exactly when papers are to be read, we have ourselves to regret the loss of much that we should have been disposed to publish.

In the Mathematical and Physical Section, amongst the papers read were the following:—"On the Trisection of an Angle by Plane Geometry," by Mr. Patrick Cody; "On the Principles of the Solar Camera," and "On the Means of Increasing the Angle of Binocular Instruments, in order to obtain a Stereoscopic Effect in proportion to their Magnifying Power," by Mr. Claudet: "On some Optical Illusions connected with the Inversion of Perspective," by Sir David Brewster; "On his own Perception of Colours," by Dr. Gladstone; "On an Instrument for exhibiting any Mixture of the Spectrum," and "On the Results of Bernoulli's Theory of Gases, as applied to their internal Friction, their Diffusion, andtheir conductivity for Heat," by Professor Maxwell; "Experiments and Conclusions on Binocular Vision," &c., by Professor W. B. Rogers; "On a new Geometrical Method for establishing the Theory of Conic Sections," and "On an Improved Instrument for describing Spirals, invented by Henry Johnson," by the Rev. Dr. Booth; "On a new Analyzing Prism," by Professor Jellett;" "Further Researches regarding the Laws of Chromatic Dispersion," by Mr. Mungo Ponten; "On the Chromascope," by Mr. John Smith, of Perth; "Description of a New Reflecting Instrument for Angular Measurements; and of another for Measuring Actual Distances," by Mr. Patrick Adie; and "On the Triplicity of Sound," by the Rev. S. Earnshaw.

In the Chemical Section, amongst the papers read were the following:—"On the Deodorization of Sewage," by Dr. Bird,—which did not place the subject in a more advanced position, whilst the discussion showed a concurrence of unfavourable views of the immediate prospects; "On Ozone," as before referred to, by Dr. Andrews; and "On the Causes of Fire in Turkey-red Stoves," by Dr. W. Wallace.

In the Geological Section, the vicinity of Oxford was described by Professor Phillips; the Blenheim iron ore, and the formations below the Great Oolite at Stonesfield, were treated of by Mr. Hull; and a new map of the neighbourhood was exhibited by Sir R. I. Murchison. The geology of Cambridge was explained by Professor Sedgwick. We cannot, however, find space even for the names of the majority of the interesting papers in this section. We may mention that there was one "On the Course of the Thames from Lechlade to Windsor, as ruled by the geological formations over which it passes," by the Rev. J. C. Clutterbuck.

In the Zoological and Botanical Section, we may refer to several papers on the Teredo, and the mischief caused by it to timber in water; and a vote of money was announced at the concluding meeting of the Association, for the prosecution of research on this important subject. In this section there were several papers on the views of Mr. Darwin and others, that the progression of organisms is determined by law of which we may mention one by Professor Draper, which treated of the intellectual development of Europe.

In the Geographical Section, Mr. John Crawford read a paper disputing the Aryan, or Indo-Germanic Theory of Races; and there were other papers on analogous subjects,—as one by Dr. Robert Knox, "On the Origin of the Arts, and the Influence of Race in their Development." A paper was read before the conclusion of the meeting, by the Rev. Professor Graves, "On the Arrangement of the Forts and Dwelling-places of the Ancient Irish;" and an account of the progress of the works of the Isthmus of Suez Canal, by Mr. Daniel A. Lange. In the same section, Mr. Thomas Wright had given an account of the Excavations at Wroxeter, bringing up the particulars to the latest discoveries.

The papers in the two remaining sections,—those of "Economic Science and Statistics," and "Mechanical Science,"—were some of them of great value or interest; and these we shall notice more minutely. Passing over a paper by Mr. Edwin Chadwick, C.B., "On the Physiological as well as Psychological Limit to Mental Labour,"—a subject, however, of great moment,—we come to one by Mr. Henry Roberts, F.S.A., "Notes on various Efforts to improve the Domiciliary condition of the Labouring Classes." It had for its object to remove the impression operating against the erection in larger number, of buildings of the improved character,—namely, one to the effect that they cannot be pecuniarily remunerative. Reasons were adduced for the failure which had occurred in some places; and facts were given tending to show there had been a considerable number of cases of success. It appeared that the Metropolitan Association for Improving the Dwellings of the Industrious Classes, from six buildings in different parts of the metropolis, accommodating 395 families, had received, after deducting all current expenses and repairs, a net return of 3¾ per cent. on the outlay. On two lodging-houses, one of them new, the return had involved a considerable loss, either because the buildings were too large, or in some other way not adapted to the class of men frequenting the neighbourhood. A similar result had been experienced at Marseilles, through choice of a site outside the town—too far from the men's daily occupation; whilst, at Leeds and Liverpool, buildings on a smaller scale, better placed, had required to be extended. Passing to a consideration of the undertakings of the Society for Improving the Condition of the Labouring Classes, although the accounts did not afford the same facility as in the other case for ascertaining the pecuniary return on the investment, the author showed that from the Bagnigge Wells, Streatham-street, and George-street buildings, the return collectively, after deduction of ¾ per cent. for repairs, was 4½ per cent. net. The return for the Streatham-street building, it should be stated, was higher than from the other two; that is, it amounted to 5 per cent. net. The rents were fixed below those usually paid for similar accommodation. The new buildings in Portpool-lane were considered to be of so experimental a character, that their results formed no criterion, "excepting as a caution against providing largely in one building for single women." The rooms so provided at Portpool-lane had not been fully occupied; and "more stringent regulations with regard to the hours of closing, and more constant supervision than in the men's lodging-houses, proved to be indispensable." We trust this comparative ill-success will not induce the society to lose sight of the fact that residences for single women are really more required in London than for single men.

In his calculation of the return on the first-named piles, Mr. Roberts explained, 4 per cent. interest was taken on the cost of the land. In the case of the two lodging-houses, old buildings and leasehold, one in Charles-street and the other in King-street, the return left, after deducting per centage on repairs, was 15 per cent. Repairs in the above calculations are taken as averaging ¾ per cent. only on new buildings; 2 per cent. is required on old buildings.

In the case of three old courts put into a good sanitary state with suitable fittings, the lodging-house included, the return had been much less satisfactory. In 1858, it was, after deducting 1½ per cent., about 1¼ per cent. only; whilst in the past year, the receipts had diminished considerably; and even the actual benefit resulting otherwise, was not that supposed,—as a considerable portion of the previous tenants had been ejected, not only to reduce the number to a due limit, but to secure a more eligible class. However, from the figures, it would appear that whilst old buildings may be dealt with, for men's lodging-houses, with a fair prospect (though results will depend on the manner in which the work is done), courts and old buildings for families in the metropolis will not yield a satisfactory return after provision made for repairs, and for a sinking-fund to pay off the capital—which there should be, especially in the case of leasehold property. It was, however, stated that the Hastings Cottage Improvement Society during the past three years, had succeeded in getting a return of 6 per cent. It forms the main part of that Society's principle, to disturb existing occupants as little as possible. There is a reserve fund of 1 per cent. per annum.

The sanitary and moral results of the operations of the two London societies, need not be here recapitulated. The point required to be got at, is the reason for any ill success which there has been in the financial returns, and in the extent to which the example has been followed by speculators, or by philanthropists who would gladly select the form of investment in buildings of the kind referred, were they assured of a moderate return. The sanitary and moral effects, taking them as a mere drop in the ocean of the extent and vast population of London, the author did not consider were unimportant, or when compared with those in Paris, obtained by a Government subvention of 10,000,000 francs. For description of what had been done in the British metropolis, the author referred to his paper "On the Improvement of the Dwellings of the Labouring Classes," given in the "Transactions of the National Association for the Promotion of Social Science," for 1858.

Still, facts remained to be stated regarding financial success in London. At Shadwell, close to the line of the Blackwall Railway, some miserable dwellings came into the possession of a gentleman, Mr. W. E. Hilliard, of Gray's-inn, who thereupon decided to endeavour to improve his own property, and also by example the immediate neighbourhood. The old dwellings were replaced by a street, with dwellings on Mr. Roberts's plan, as exhibited in 1851 in the Prince Consort's Model Houses. There are twenty-eight blocks, each of four residences—112 families in all being provided for. The cost of each block was 487*l.*; and, after allowing for ground-rent and all charges, the authority of the owner was given that they continued to "pay upwards of 6 per cent., and, in fact, nearly 7 per cent., as a net return on the investment;" whilst the same competent judge spoke of the facts as of "perhaps more consequence," that the houses were "almost constantly let," and were "appreciated by the tenants"—who, "as a rule," were "pretty stationary, and not migratory, as that class frequently are."

Thus, as in the last-named case, we have an outlay (of 14,000*l.*) on new buildings, containing 448 rooms, kitchens included, yielding 6 to 7 per cent.; whilst the cost of putting into sanitary condition the three old courts before alluded to, which contain 275 rooms and a lodging-house with forty beds, had been upwards of 7,000*l.*; and, in that instance, the return on outlay has been 1¼ per cent., after deducting 1½ per cent. for repairs, but making no allowance for sinking fund.

The Windsor Royal Society, with 9,000*l.* invested, now pays 4 per cent.: at Liverpool the Frederick-street dwellings, for twenty-three families, pay 4¾ per cent.; and the Association at Brighton gets a fair return. Not fewer than twenty societies have been established in provincial towns, the results to occupants being in every case beneficial; and, whilst the financial results have varied so far as to show the necessity of competent skill in planning, and watchful supervision, they are yet valuable. One instance from Scotland,—that of the Pilrig Model Buildings, near Leith-walk, Edinburgh,—was added by Mr. Roberts. There are forty-four dwellings in three blocks, with access on both sides, the upper floor tenements approached from one side, and the ground-floor from the other. By economy the cost was only 4,052*l.* 15s. 9d., or about 92*l.* per house. The rent of the whole is 303*l.* 19s., or varying from 5*l.* 5s. to 9*l.* 15s., per house, one-half of them not exceeding 6*l.* 6s. per house. The rents were purposely made low. After deduction of all expenses, namely, fee duty, 22*l.* 14s. 10d.; insurance, 5*l.* 12s. 6d.; rates and taxes, 13*l.* 11s. 2½d.; repairs, 13*l.* 4s. 7d.; management, 21*l.* 6s. 3d.; and paying a dividend of 5 per cent. (less income-tax), a balance of 30*l.* 13s. 1d. was last year added to the sinking fund, from which sundry expenses, as painting and papering, are defrayed, this fund now amounting to nearly 200*l.* The demand for the tenements is generally six times the supply. Besides these instances, allusion was made to what had been done through enlarged views of self-interest by many large proprietors and companies, and to the possible development of the machinery of Building Societies. Improvement in the metropolis, the author urged, as we have often, should be consequent upon demolition for new streets, and should be enforced. A standing order of the House of Lords for the investigation of such cases, he said, had become a dead letter. The Legislature should interfere in the case of all tenements let at low rents, as in the lodging-houses; though such a power exists in the City.

In the discussion which followed the reading, Mr. Edwin Chadwick contended that results of improvement were even more favourable to the object of the author of the paper than would be supposed from what had been stated. He did not, however, we thought, add much to the argument to be addressed to capitalists, and in favour of good planning and internal arrangement of tenements; though he adduced the facts of the gain by sanitary measures in towns. Reference being made to the branch of the subject connected with cottages in agricultural districts, Mr. C. H. Bracebridge described some cottages which he had built at Atherstone, Warwickshire, each containing equal to three bed-rooms, and which had cost, exclusive of closets at the back, but inclusive of a common wash-house and dust-bin to a group of five houses, as well as pathway, 81*l.* 6s. a cottage. The object of low cost, and the provision of the third bed-room, were attained by placing the bed-room in the roof—altogether, or nearly so. The roof being constructed with queen-posts, the room was got in the space between the "queens." The area in the clear, covered by each house, was 21 feet by 13 feet: the room on the ground floor was 13 feet square; and the space for stairs and other features of the plan, 13 feet by 8 feet, including the partition. The room in the roof, which ran from end to end, was of adequate height; and it cost about 6*l.* of the amount named as that for the whole cottage. This room was not, it was true, a very good one; and it had to be reached by some kind of ladder: nevertheless, it served the purpose, and it had an advantage over a better room—as it could not so well be let. Water supply, except that from the roof, is not included in the amount named.

Subsequently in the same section, a paper, by Mr. H. J. Ker Porter, M.R.I.A., was read, entitled "Hints on the best Plan of Cottage for Agricultural Labourers." It was useful as showing the disposition on the part of tenants in certain districts, to pay a moderately increased rent for dwellings, better built, and provided with means of ventilation. Having remarked that in the cottages of farm labourers, besides the defective drainage and ventilation,

the evil of cold air was felt,—as from construction of the walls, in some cases, of "wattle and dab," or wickerwork, covered with untempered mortar,—the framework of which was always giving way, so that doors and windows could not be kept water-tight,—the author said he had had thatched roofs of such buildings underpinned with brick walls, in which new doors and windows were added, at a cost of from 10*l.* to 12*l.* a cottage, for which alteration the occupiers were willing to have 5 per cent. on the outlay added to their rent. In some new cottages, of which Mr. Porter showed drawings, ventilation was secured, he said, by a 4-inch square opening, near the ceiling of each apartment, connected with a flue of the same size, carried to the gable of the house for egress; or several of such flues might be connected together. On an estate in Ireland, where this arrangement was adopted, immunity from fever had been shown in contrast with the cases which had occurred in neighbouring dwellings. In the new dwellings, for defective lead-lights, or iron casements, sashes, swivel-hung, were substituted, formed, —the outer part of the sash of wood, and the inner divisions of ¾-inch hoop iron, cut half through at the intersections. Thus, with strength, there was the advantage of being able to add to, or take from, the outer sides of the sash, to make them fit tightly. After the erection of one cottage, on an estate in the county of Huntingdon, so many tenants were desirous of the benefit of like improvements, that several more cottages on the same plan were to be built; and the five per cent. on the outlay, additional rent, would be paid by the labourers,—who were only glad to settle where they could find constant employment and comfortable and healthy dwellings. The money in this case was advanced by the Land Improvement Society, the repayment being spread over twenty-one years; so that the proprietor of the estate, who was only tenant for life, had not to debar himself from making other improvements for benefit of his tenants. We must leave the completion of our notice till next week.

THE PARIS ART EXHIBITION OF 1861.

THE following is the official programme of the Paris Art Exhibition of 1861, announced on the 23rd instant, by the Count de Nieuwerkerke, Inspector-General of the Imperial Museums:—

REGULATIONS.

CHAPTER I.

Deposit of Works of Art.

Art. 1.—The exhibition of the works of living artists, to be held from the 1st May to the 1st July, 1861, will be open to the productions of French and foreign artists.

Art. 2.—The following works are to be admitted:—

1. Paintings, comprising also drawings, water-colours, pastels, miniatures, enamels, or on porcelain.
2. Sculpture and medallions.
3. Engravings.
4. Lithographs.
5. Architecture.

Each artist is only permitted to exhibit four works in each of the above classes.

Art. 3.—The works not to be admitted are:—Copies, excepting those reproducing a work in a different style, on enamel, in porcelain, or by the altered design. Works already having been exhibited at preceding exhibitions in Paris. Pictures or other objects without frames. Productions of a deceased artist, unless the demise took place since the opening of the last *salon*. Anonymous works. Sculptures in unbaked clay. Painted windows (stained glass).

Art. 4.—Each frame is not allowed to contain more than one subject for the jury to decide upon unless there are several pieces which form an *ensemble*. Miniature painters can alone group their objects in the same frame.

Art. 5.—Works in round, oval, or polygonal frames, must be adjusted into gilt ones of a square form.

Art. 6.—If several works be sent by the same artist they must be all presented at the same time.

Art. 7.—All works to be delivered at the Exhibition building at the expense of the artist.

Art. 8.—Each artist, in delivering, or causing to be delivered any work of art, must, at the same time remit, or cause to be remitted a notice, signed by him, containing his name, Christian name, place of nativity, the names of his masters, and the enumeration of rewards already obtained. Those who cannot accompany their works must send some person authorized under their handwriting.

Art. 9.—Each of the five classes of works mentioned in Art. 2 must be specified in a separate notice.

Art. 10.—An appendix to the catalogue will be devoted to works of painting and sculpture executed, since the last Exhibition, in public monuments, and which, by their fixed position in the decoration of these monuments, cannot figure in the gallery of 1861. Artists, on depositing at the bureau of the catalogue the indications of these works, should accompany their declarations by official vouchers attesting the order given for the works, and the date of delivery.

Art. 11.—No work having been registered for exhibition is allowed to be retouched.

Art. 12.—No work is allowed to be reproduced without special permission of the artist.

Art. 13.—No work can be removed before the closing of the exhibition without special permission.

Art. 14.—All works must be deposited from the 20th of March to the 1st of April, at six o'clock in the evening. Beyond this time no work will be received. No indulgence of time will be allowed by the administration.

CHAPTER II.

The Jury of Admission.

Art. 1.—The jury will be composed of the four first sections of the Academy of Fine Arts, to whom will be joined the free members of the Academy.

Art. 2.—Each work, whatever be its nature, will be judged by the whole of the jury.

Art. 3.—The director-general of the Imperial Museum will be president of the jury.

Art. 4.—The decisions will be according to the absolute majority of the votes of the members present. In case of equal votes the work is decided to be admitted.

Art. 5.—The works received without examination will be those of artists decorated for their works, or having obtained a 1st class medal in the annual exhibition, or a 2nd class medal at the Universal exhibition.

CHAPTER III.

The Jury of Rewards.

Art. 1.—The same jury which pronounces the admission of the several works is to decide upon the merits of those worthy to receive the medals or honourable mention.

Art. 2.—The medals are of three classes: 1st value, 1,500 fr.; 2nd value, 500 fr.; 3rd value, 250 fr.

Art. 3.—The awards of the jury cannot be over-ruled.

For Painting.

Three medals of first class; six medals of second class; and twelve medals of third class.

For Sculpture.

Two medals of first class; four medals of second class; and six medals of third class.

For Engraving and Lithography.

One medal of the first class; two medals of the second class; and four medals of the third class.

For Architecture.

One medal of the first class; two medals of the second class; and three medals of the third class.

Art. 4.—A medal of honour, value 4,000 francs, can be awarded to the artist who distinguishes himself pre-eminently by a brilliant work of merit.

Art. 5.—The rewards will be distributed with all due solemnity at a meeting held for the occasion.

The sums received for admission and other purposes will be devoted to the purchase of some of the exhibited works.

Admission on week days one franc. On Sundays the public are admitted free.

COMPETITION: PUBLIC ROOMS, KIRKCUDBRIGHT.—The committee appointed to carry into execution the erection of public rooms in this town, in connection with the Institute, have awarded their premium of 20*l.* for the best plan of a building suitable for such a purpose to Messrs. Haig & Son, of Glasgow.

AN ARTIST'S IMPRESSIONS OF THE ESCORIAL.

RICH as Spain is in architectural monuments; in the Alhambra of Granada; the Mesquina of Cordova; the cathedrals of Seville, Burgos, and Cuenca; the noble Roman remains, as the aqueducts of Segovia and Merida; there is none that in magnitude and importance exceeds the Escorial; and it is wanting only in that romance with which a more remote antiquity invests great works, to render it of equal interest.

That the intention of erecting it in the form of a gridiron, in honour to its tutular saint, Lawrence, controlled or influenced its plan, I believe to be an idle remark, devoid of foundation, which has gained credence by being frequently repeated, especially by the writers of published travels and guide-books, from Swinbourne to Ford. The latter, enlarging upon it, says:—"Bigoted indeed was Philip when he could sacrifice the opportunity of building a perfect palace to the idle legend of a gridiron; and poor Herrera, forced to lower his genius to a plan worthy of the beefsteak club or Cobbett's 'Register,' was indeed the real martyr."

The plan of the building bears no resemblance to the symbolical gridiron with which the saint is represented in the statues and pictures which form the architectural decorations, and which were placed under the inspection of the architect himself. The general plan and arrangement bear unmistakable evidence of the influence of the Moorish taste in architecture, however different or even opposed in its development and detail, like the Alhambra in its arrangement of *pateos*, as well as in the absence of architectural features, and almost baldness of the exterior. The quadrilateral intersections of the building forming the *pateos* have given rise to the surmise that it was erected in the form of a gridiron; but I believe that the present form would have been adopted had it been dedicated to any other saint than St. Lawrence; nor can I imagine one more appropriate to the climate and to the object for which it was erected—that of a convent palace.

The north façade, in which is the principal entrance, presents more architectural features than the others, which are indeed almost devoid of them; but it is in the interior that the artist has lavished his genius, not in ornament or richness, for its style is of the utmost severity (the order Doric), but in giving that impression of dignity and grandeur which is derived from beauty of proportion allied with majestic simplicity.

Upon entering the principal porch we pass an open vestibule supported by Doric columns, and are immediately in the fine court, the *Pateo de los Reys*, the side of which in front is elevated by a few steps, for it forms the façade to the church—one of the noblest monuments of architecture of the modern world. Upon entering the vestibule we have a view of the church in its full extent, it being separated by an open archway and massive grating only. The vestibule, which is somewhat low, is remarkable for its flat roof, which is constructed, not by means of beams, but with solid blocks of granite, upon the principle of an arch reduced to its minimum of curvature. For the lateral pressure, which must be enormous, I am not aware of the provision, which is of course concealed in the walls.

The view of the interior of the church, from the vestibule, moved to enthusiasm even the cynical genius of Ford, who exclaims that,—"as seen from under this sombre grotto-like arch, it is the triumph of architecture, it takes away the breath of the beholder from its majestic simplicity."

The situation and arrangement of the *coro* I consider a masterpiece of art: it is placed above the vestibule, thus not encumbering the principal nave, as in the cathedrals of Seville and Toledo, and indeed in most cathedrals; impeding the view of the high altar and impairing the impression of their vastness. The effect of its arrangement in respect to acoustics is admirable, the intonation of the service floating through and filling the church without its being perceived from whence it comes, its elevation being sufficient to hide from view the stalls. The *coro* above the vestibule forms part of the body of the church, and parallel with it are galleries running round the church, and widening in the opposite side to the *coro* (by the high altar) into the *ante-coro*, from which the views of the church are remarkable for their grandeur and varied architectural effects, which recall strongly the impression of the upper galleries of the Coliseum at Rome. From these galleries open several noble rooms, as the *sacristia*, &c. The cloisters are in accordance in style with the church: the arched doorways communicating between them enforce attention, notwithstanding their freedom from all

ornament and their severe simplicity, from the beauty of their lines.

In the works of no architect is the impress of the genius of the individual more apparent than in those of Herrera, not only in the whole in which he has known how to impart to the Roman architecture, in his sacred buildings, that solemnity which is considered as exclusively belonging to the Gothic (as may also be seen in the portion of the cathedral of Valladolid executed by him) and which is not apparent in the same degree in St. Peter's, Sta. Maria Maggiore, and other churches of Roman architecture,—but the portions of his work bear his distinctive mark. It is, therefore, to be regretted, as he completed the Escorial, that any subsequent additions to or alterations in it were made. Some of these, as the grand staircase and the Pantheon, or burial vault of the sovereigns, although fine in themselves, are not in harmony of style with the original building. The former was by Castello, though Herrera has shown his power in designing a staircase in the beautiful though smaller one of the Lonja, at Seville. The erection of the Pantheon, or the burial-vault of the sovereigns, is more objectionable, as more florid in its style, and replacing the appropriate one designed by Herrera. I consider, also, the effect of the church impaired by the frescoes, subsequently added, of Luca Giordano, who has painted the vaulted roofs of the *ante-coros*, which are conspicuous from the church. His style was peculiarly that of the decline of art, with its vapid redundancy and all its vices, and is especially out of place here, which is not the case with those decorative portions, the frescoes of Romulo Cincinato and L. Cangiagi, in the *Coro Alto*, and the pictures at the altars by El Mudo, which were placed under the architect's inspection, who, having completed his work, superintended its appropriate decoration, and even himself designed the bronze tabernacle of the high altar,—"a glorious work of art,"—now no longer existing.

When we consider how many of the greatest works of modern times, as the Palace of Whitehall, the Cathedral of Cologne, the Duomo of Florence, have never been carried to completion,—that St. Peter's occupied for more than a century a succession of Popes,—it is worthy of admiration that this—one of the most vast of architectural works—was commenced and finished in twenty-one years by a prince who at the same time was enriching Spain, in various parts, with noble structures. Its magnitude is such that it does not appear dwarfed by the Sierra, in the midst of whose wilds it is placed, and with whose sombre aspect it is in perfect harmony. Its gloomy and austere character, which has been objected to as a fault, is surely its crowning merit. It was a *convent* palace, and even the parts for royal residence were subordinated to the predominant and religious feeling. Its almost Cyclopean simplicity is certainly more in unison with its object than in the Pitt Palace at Florence, which included no sacred element in the object of its erection. That it embodies most vividly in outward and visible forms the austere and ascetic feeling of religion which circumstances long continued to produce, though now passed away, with which the sovereign, and, indeed, his subjects, were equally imbued, is a triumph of art; for surely architecture assumes its highest rank as a fine art in attaining the power of embodying a feeling and expressing powerfully a sentiment, in which respect the Escorial may with justice be termed "a romance in stone and mortar."

Madrid. F. Y. HURLSTONE.

CONDITION OF LONDON HOUSES.

CAREFUL personal inquiry shows, not only in the metropolis but throughout the provinces, that the enactments which have been made during recent years in connection with common lodging-houses have worked well. Those places, in days not far back, were in many instances "pandemoniums" of the most terrible description, in which vice was encouraged, and pestilential diseases which destroyed a large amount of life were generated. The profits of some of them were enormous; and it is a fact, that certain persons let houses of a description which were not fit for human occupation,—where drainage or ventilation, or cleanliness or decency was uncared for,—where both sexes were huddled together, and immorality prevailed.

In years to come, inquirers into sanitary conditions will look with wonder at some of the pictures of such houses which have been preserved. Sometimes a single room was made to contain a larger population than a house of the ordinary size built for the use of the middle-classes should contain.

The Earl of Shaftesbury, who has seen the ill condition of London with his own eyes, not long since introduced a bill into the House of Lords, for the purpose of extending the provisions of the enactments in connection with the common lodging-houses. This, however, was not carried, amid the expression, "that an Englishman's house was his castle."

Amongst the relics of the feudal times, we have seen English castles, moated and otherwise, which must have been most pestilential; but these scarcely bear comparison with some of the modern castles of the poor in this country in these intelligent days, which are beyond the reach of the law, but where absolute need exists for attention and change. We have lately made inquiry in connection with some of those castles in which the poor dwellers would be glad of assistance, for the salvation of their own and children's health.

In a street to the west of the Caledonian-road, Islington, there has been a considerable amount of death and ill health. The houses, although they have been erected since the laws in connection with metropolitan dwellings should have made imperfect drainage impossible, have been poisoned by stoppages, and this in cases where they are let in tenements and the population is dense. Take a sample of some of them in this respect. Each contains two kitchens below the surface, and six rooms above. In one of those places the population is as follows:—Three in the kitchens; nine in the parlours; four in the first-floor front; four in the back; five in the second-floor front; three in the back. Total, twenty-eight.

In the dwelling adjoining there are thirty persons.

In three houses we have a population of *seventy-six men, women, and children;* and many dwellings in which respectable working-men who have families of children are obliged to dwell, will be found to contain a far larger population in proportion than this.

While considering this important question, it is worth while to glance at the amount of rent which is paid by lodgers in those situations.

The rent of these houses we would put at an average of 25*l.* a year, and about 6*l.* taxes (31*l.*):—The kitchens let for 4s. 6d. a week; the parlours for 5s.; front room, first-floor, 3s.; back room, 2s.; front room, second floor, 3s.; back room, 1s. 6d.: total, 19s. This makes 49*l.* 8s. a year, and leaves a profit on such a house, beyond the actual rent, taxes, and rates, of 18*l.* 8s.

In such places the struggling classes pay, as is shown by the above statement, a sum which should be sufficient for decent and wholesome accommodation. The rent of tenements of this kind is generally safe; in fact, the risk is more frequently to those who occupy the premises, owing to neglect of the sub-landlord to pay the rent and taxes, the amount of which they have actually received. This, however, is not a part of the subject to which we would particularly refer: we are speaking of the danger of overcrowding houses which are at present not adapted to such purposes.

We have lately looked at premises in several other parts of the metropolis, and find the overcrowding even worse than in the cases alluded to. In one house, where every room is let to separate families, we found, by the statement of the landlord, that forty-five persons lodged there, and it is probable that the fair average is upwards of fifty, who sleep nightly in spaces altogether insufficient for the preservation of health. It will be said by some who have thought on this matter, that it is only by letting, in the manner in which the dwellings in the metropolitan district are now let that the rent can be kept within the means of thousands of families, and that to interfere with the overcrowding would have the effect of raising the prices of the homes of those who, having large families, have the greater need of cheapness. There is truth in this; but for the protection of young life—for the sake of enabling workers to preserve that stamina and degree of health which would allow them, by means of increased earnings, to pay a little extra rent, and for other important considerations, such a state of things should not exist. In the houses which have been mentioned in Islington, and it is the same in many other instances, the drains were partially choked; children became sickly; measles and whooping-cough visited in their most dangerous forms. In such cases the doctor and undertaker are often knocking at the doors. Nor is this to be wondered at. The rooms occupied as shown, are not provided with the necessary means of ventilation; the staircases are in the same way neglected, and the atmosphere when the windows are closed at night, is very bad. In such houses some are aware of the danger of this, but being on friendly terms with the landlord, do not like to complain; others may be a little in arrear; but the chief part are careless. It is therefore a necessity for the wellbeing of all, that facilities should be given for the sanitary inspection of all houses which are let into more than a certain number of tenements. This duty need not be made unpleasant to persons dwelling in such situations; in fact, we feel assured that supervision in this way would be agreeable to a large majority.

All houses let in tenements should be in the first instance inspected by competent men, who should give a certificate that the drainage is sufficient,—that provision is made for a proper water-supply,—that closets and drains are trapped,—the rooms, staircases, &c., ventilated; and from time to time with great regularity the premises should be examined, and any derangement reported upon and remedied.

Having seen the condition of vast masses in the metropolis, and in some large towns, we are convinced that the greatest benefit would be conferred on thousands by such a provision as that alluded to,—that hundreds of lives might be in each year saved, and that the condition of a large body of our working population would be materially improved.

THE FIRST MAKER OF EARTHENWARE SEWER AND DRAIN PIPES.

ORIGINALITY is very difficult to establish in this our day; and it will be still more difficult to be original in succeeding ages. Printing, libraries, and the Patent Office will show that the human mind reasons in a circle; that "necessity" is truly "the mother of invention;" and that many inventions have been many times invented. A thing may, however, be as old as the hills, and yet to an inventor it may be new; but this cannot make it original to the world. The inventor can only complain that "the ancients had stolen his ideas." Certain persons claim to have invented (about 1844) earthenware pipes for town sewerage and house drainage purposes, when on inquiry it appears that earthenware socket-pipes have been made in Lambeth at a much earlier date.*

The sanitary inquiries and reports up to "The General Report on the Sanitary Condition of the Labouring Population of Great Britain, 1842," in which Mr. Edwin Chadwick performed so important a part, had laid bare the terrible neglect under which the mass of our people existed; and whoever will read these reports carefully will find that most of the sanitary improvements which have since taken place had been indicated. John Roe, engineer to the Finsbury district, had demonstrated that sewers should have circular inverts and regular forms; and about this time ordered earthenware socket-pipes, for the purpose of using them as sewers and drains.† Pipes were ordered from two makers simultaneously, "without letting either know that the other was employed;" so that it is quite clear neither of these gentlemen can claim priority of invention; especially as we find, by the previous testimony, that earthenware socket-pipes had been made in Lambeth for fifty years, within personal knowledge, and probably for upwards of a century. Mr. Rawlinson, in several of his sanitary reports, gives instances of the use of earthenware pipes in towns for the conveyance of water. At Longton, near Stoke-upon-Trent, earthenware pipes were made of blue marl, others of brown earthenware, and some of China clay. They were termed "pitcher-pipes," and were made by hand, 2 inches in diameter, and in 2-feet lengths. They

* "My father from his own observation, knows that socketed pipes have been made at Lambeth for the last fifty years. He has no doubt they have been made here for a century past. Till within the last fourteen years they were chiefly used for the conveyance of rain-water. They were considered a good substitute for leaden pipes till iron were made so cheap.—HENRY DOULTON."

† Mr. Roe (April 17, 1860) thus writes to Mr. Chadwick: "At the time alluded to in your letter (1842) I directed one of my clerks of works (Mr. Needworth) to ask two of the stoneware manufacturers each to make me a 2-feet length of 9-inch socket-pipe of stoneware, without letting either know that the other was employed, as I wished to see how their prices would agree over this new adaptation of stoneware. One of these manufacturers was Mr. Northen: the other was Mr. Davis. The two specimens arrived at the Holborn and Finsbury Sewers Office, in Hatton-garden (I believe) on the same day, and remained there until after the amalgamation of the Commission of Sewers.—JOHN ROE."

The Etrurians used brick sewers with circular inverts; and John Howard, the prison philanthropist, in his great work, recommends egg-shaped sewers as better than those square on section. Pipes of glass have been made and tried, both in France and in England, but failed.

broke and burst in use, although they had been proved capable of resisting a much higher pressure singly. At Sunderland earthenware-pipes were made from 1½ up to 5 inches internal diameter, and 54 inches in length, each pipe.

These pipes were squeezed through what is called in the potteries *a dod*, an inverted cast-iron cone, with a bore in the centre. This dod was fixed at the bottom of a cylinder; and, when filled with tempered clay, a piston was screwed down, and forced the clay through in the shape of a pipe. A man below received it on a wooden mandril, and a boy cut it off with a wire to the fixed length. These pipes bore an internal pressure up to 350 lbs. on the square inch, but although they would bear a constant heavy pressure, in use they burst by the shutting of a cock, splitting longitudinally. The joints were made with cast-iron faucets. Roman cement, sulphur, and flannel soaked in tallow; as also oakum soaked in white-lead and tallow, were used for jointing. The pipes did not give way at the joints. Such earthenware pipes were used at Lyme Regis Waterworks, in 1821, and at Bishop Wearmouth, 1824-25. The early water companies used wood, stone, and earthenware, but cast-iron supersedes every other material at present for waterworks mains.

The Assyrians used earthenware pipes for drains. Mr. Layard has found them in the foundations of ancient Babylon. They were used by the Egyptians and by the Hindoos; and no doubt by the Chinese in the remotest periods. Etrurians, Greeks, and Romans also used them; and Vitruvius describes them fully. The Easterns make and use earthenware pipes to this day. Mr. Rawlinson saw some Turkish workmen laying a line of earthenware aqueduct pipes to the hospital at Kulali, on the Bosphorus, the joints made with a cement composed principally of lime. These pipes were of modern make, and about the same form, dimensions, and general appearance as hand-made English earthenware pipes.

The annual make and use of earthenware pipes in England at present is enormous—upwards of 12 miles per week, or more than 600 miles per annum; the least diameter 4 inches, and up to 36 inches; but, as a rule, 15 and 18 inches are about the largest diameters used to any great extent.

Several towns in England have been entirely sewered with earthenware pipes, and in most towns they are used as tributaries from branch streets where brick sewers are used as mains. Many thousands of houses are drained with earthenware pipes, from such houses as Alnwick Castle down to the single labourer's cottage.

If no modern can claim to have invented earthenware pipes, many can now claim to be users of them. Mr. Edwin Chadwick was one of the earliest to enforce a their use, as better and more economical than brick drains.

"Pitcher-pipes," "pot-pipes," "earthenware-pipes," are used, and will be used, for draining purposes, to an extent not before seen in the world. Macaulay's New Zealander will be able to stock the museums of the new world with dug-up specimens of earthenware pipes from our ruined towns and from our fields long after every surface vestige of our civilization has perished and passed away.

ARCHITECTURAL EXAMINATIONS PROPOSED BY THE INSTITUTE.

AN adjourned meeting of members of the Institute, on the subject of Architectural Examinations, was held on Monday evening last, the president, Mr. Cockerell, R.A., in the chair. A resolution to establish two examinations, open to members of the Institute, was moved by Mr. George Morgan, and seconded by Mr. Ferrey. Upon this an amendment to the effect, that the examinations should be open to all British subjects, was moved by Mr. J. W. Papworth, and seconded by Mr. Hansard. A second amendment, to appoint a sub-committee to inquire and report, was moved by Mr. Wigginton, and seconded by Mr. I'Anson. Ultimately, however, it was resolved to adjourn the consideration of the question until the second Monday in November next, the Council, meanwhile, to ascertain the opinion of provincial Architectural Societies.

Readers of the *Builder* do not require to be told our views on "the diploma question." The difficulties in the way of properly carrying out examinations in respect of art are very great, and the advantages that would result in this particular case very doubtful. In Prussia, as our readers have been told, the system has made red-tapists instead of architects, and men are crammed with a variety of useless knowledge to the extinction of vigorous thought and active art-exercise. The course of study at any particular period, the fashion of the day, the opinions held, *may* be wrong ones. Make the adoption of these a necessity on the part of all who would obtain the right to practise, and you lengthen the existence of error and greatly obstruct the advance of improvement. The longer we think on the subject, the less inclined we are to agree with those who insist that no one should be allowed to practise as an architect who had not passed a prescribed scholastic examination and obtained a diploma.

What is now proposed by the council of the Institute of British Architects, however, is another thing. The rising members of the profession ask for an opportunity to show that they have properly studied their profession and may be safely trusted by the public, and the Institute, we are disposed to think, will do right if they afford them the desired opportunity. A more complete and thorough education for the architect is needed, and the institution of these examinations will tend materially to bring this about. We shall have plenty of time to go more fully into the matter.

DEPUTATION ON CITY OF LONDON CHURCHES.

A DEPUTATION of the Council of the Royal Institute of British Architects, consisting of the President, Mr. C. R. Cockerell, R.A., Mr. J. Bell, Hon. Sec., Mr. Penrose, Hon. Sec. for Foreign Correspondence, and Mr. Roumieu, waited by appointment on the 3rd inst. on the Bishop of London, to confer with his lordship on the best means of securing the finest of the City churches, especially those built by Sir Christopher Wren, from danger of demolition under the proposed Union of Benefices Bill. The deputation pointed out the objects which they had chiefly in view, namely, *the preservation of all the towers* which form so remarkable an ornament to the City; and also that a list of churches should be appended to the Bill, and which should be specially protected by some additional safeguard, the list to be settled after due reflection and advice; but the following would be among the most conspicuous:—St. Stephen's, Walbrook; St. Clement's Danes; St. Bride's; St. Lawrence, Jewry; Christchurch, Newgate-street; St. Andrew's, Holborn; St. Martin's, Ludgate-hill; St. Swithin's, Cannon-street; St. Anthony's, Watling-street; St. Mary's Abchurch; St. Antholin's; St. Michael's, Cornhill; St. Mildred's, &c.

The deputation was very courteously received by his lordship, who pointed out the way most likely to conduce to the objects contemplated by the council.

ON SCULPTURE.*

IT is not my intention to give you anything like a history of the art of Sculpture, nor to enter upon the controversy that has lately raged between those who have advanced diverse views upon the subject of our sister art. My engagements have allowed me but few hours to prepare this paper: the treatment I can give to the subject must, therefore, be more suggestive than complete. My attempt will be to put before you the subject in something like chronological order, bringing forward, in illustration of each epoch, certain examples which will afford the students of the Association an opportunity of obtaining a good general idea of the subject, by comparing one example with another; and for this purpose I propose bringing before you a valuable series of copies of Ancient Sculpture in Ivory, published by the Arundel Society. It will thus be seen at the onset, that I shall contribute nothing to the sculpture controversy; but though I advance nothing original, I trust the subject may be clothed with somewhat of new interest, owing to the instructive series of Illustrations to which I shall have to call your attention, for in them we may examine, somewhat in detail, the peculiar style of each period, from the earliest ages of Christianity, enabling us to arrive at general criteria, by which the works of various centuries may be assigned, both as to date and country, in the same manner as a piece of moulded stone will generally give us, within a few years, the date at which it was wrought.

I will not waste the short time allotted to my subject by any attempt to elucidate the much controverted questions referring to the origin, and the exact date of the origin, of Sculpture as a fine art; but, I think, the more we inquire, the more fully satisfied shall we be, that its origin dates beyond all written records, and that the Greeks were quite moderns in the art, compared with those nations who practised it in the ages which preceded them. Instead of Dædalus introducing the art into Greece, it is pretty clear he was simply an improver on what had gone before: no doubt, by adding life to the expression of the features, and animation to the limbs of his statues, he made a great advance on his predecessors; but, although the ancient writers speak of his works as possessed of divine expression, we may rest satisfied that, though good for some fourteen centuries before our era, they could not compare with the works of later schools. His was, no doubt, a great epoch in the history of ancient sculpture; but, as all the examples of that and other contemporary Schools have perished, we have, unfortunately, no means of comparing the relative excellence of each, in their varied phases. Rome became the great art-treasure house of the civilized world, from the spoils of Greece and Etruria, but she was robbed of her accumulated spoils by Byzantium, who, in turn, was despoiled of her treasures, which were irrecoverably lost, in the various sacks and conflagrations to which she was subjected; aided, too, by the zeal of Constantine, in destroying all traces of the ancient worship; not, however, in either case, before accomplishing their mission by perpetuating the art, and founding separate schools, the influence of which was felt throughout the Middle Ages.

It will be instructive at the outset to advert to the various materials and modes of working adopted at each period by the ancients. In the most ancient times it is probable that the impressions of form were presented to the eye by the softer and more plastic materials, and that the modeller in *clay*—at first a potter, modelling objects for his art,—at length became so adept, that he ventured upon reliefs, and, eventually, figures. We see in the Greek and later Etruscan pottery what exquisite forms of art the material was susceptible of, and it seems very natural that a high development of this art should lead to subsequent excellence in works in various stages of relief. Numerous proofs of the excellence of the potter's art are to be seen in the terra-cottas in our own and foreign museums: at Rome, statues of the gods larger than life, and at Naples, life-size figures recumbent on Etruscan sarcophagi, show how nearly the art approached that of sculpture. Alabaster or gypsum was much used by nations even more ancient than the Greeks. The art of forming reliefs in *stucco* was also practised by the Romans.

It may incidentally be noted that the ancient terra-cottas and figures in pottery are for the most part highly coloured, from which was probably derived the custom, which at all events was partially practised by the ancients, of colouring statues worked in marble and other hard materials. Great dexterity was shown in the formation of figures in *bronze* and *brass*, sometimes by casting and soldering on the locks of hair and other projecting details; at other times, by hammering and embossing for works in gold and silver.* Brass figures were frequently covered with gilding, remains of which can now be seen on the celebrated horses at Venice. The ancients do not seem to have understood the tempering of *iron*, so as to use it for art purposes. Carved figures in *wood* were used both in the temples and for private objects, the favourite wood being cedar, which had the reputation of being incorruptible. Ebony, citron, cypress, vine, olive, and other woods were also used. But the substance most prized by the ancients was undoubtedly the *marmor* or marble, from its shining and polished surface. The marble from Paros was the favourite among the Greeks, but in later times coloured marbles were much used. Other kinds of marble in great repute were Carrara, which resembled fine sugar; Penthelic, which was veined and streaky; and Hymettian, the Nero-Antico, a favourite marble for statues of Isis, Rosso-Antico, and Porphyry. Calcareous tufa was also used, especially for Etruscan sarcophagi.

The Egyptians showed marvellous dexterity in working the harder materials, such as porphyry, granite, basalt, and syenite.

The Romans worked occasionally in these harder materials, frequently inlaying portions with various coloured marbles, and even with metals: busts and figures executed in this manner do not accord with our modern notions of refinement, and have a disagreeable harsh appearance, but the practice among the ancients seems to prove their love of colour, and it is natural to suppose that this *polylithic* process of sculpture originated from the

* From a paper by Mr. Norton, mentioned previously; see p. 385.

* This process was termed Toreutic art, and was employed for shields and armour.

use in the antique examples of actual painting and gilding, originally with vivid colours, and afterwards with softer tones: this is called *polychromic* sculpture. I think, on comparison of the two processes, the latter would unquestionably be more in accordance with refined taste. Another favourite practice was coating the surface of the marble with wax, which gave the surface a soft and slightly coloured gloss. The draperies, the hair, and portions of ornament were also painted, but apparently only for the purpose of relief, for I do not consider the practice of entirely covering the surface of sculpture with bright positive colours as anything short of a libel on the taste of the ancients. In modern times Canova and our own Gibson have adopted the same method of rubbing the surfaces of marble with wax and of partial polychrome, as far as I have had opportunities of judging, with perfect success.

The last process to which I shall refer is that of carving in ivory; and, as my examples are all in that material, I will devote a little closer attention to it. When the art of the Toreutes, or metal-workers, was combined in ancient times with carving in ivory, we come to a process which is called *chryselephantine* sculpture, which was much practised in antiquity, and is undoubtedly the most important development of carving in ivory. The ancients procured elephants' teeth from India and Africa of great size, and by a process of splitting and bending we are assured that they could obtain plates of ivory from 12 inches to 20 inches in breadth. The colossal figures executed in this manner appear to have been covered with these plates of ivory, joined with isinglass, over a rough internal model made of wood, and iron bars for support. Pausanias mentions that the teeth of the hippopotamus were also used for ivory; and the northern nations of Europe are known to have used the tusk of the walrus, from which drinking horns of immense size were made, the surfaces being sculptured with hunting and other scenes. The most celebrated example of the "chryselephantine" method was the colossal statue of Minerva, in the Parthenon, by Phidias, which was about 39 feet in height, and an equally celebrated statue of Jupiter, in his temple at Olympia. The cost of such works is described to have been fabulous, and it is clear that the labour and expense of execution must have precluded their frequent repetition. We thus find that ivory came at length to be used solely for objects of cabinet size, such as diptychs, triptychs, situlæ, devotional tablets, statuettes, and generally to mobiliary works.* It is supposed that the ancients had a method of softening the ivory, which would render the process of elaborate carving and occasional undercutting less remarkable, but this has been doubted by some authors.

Having thus briefly described the materials used in sculpture at various epochs of the art, I will commence my series of illustrations, and describe to you various examples from the Greek period through the Roman, Byzantine, and Mediæval, down to the time of the Renaissance. The Arundel casts will furnish examples of almost every century from the second to the sixteenth, whilst the photographs taken from original works at Rome, Florence, and elsewhere, will illustrate the works of Greece and Rome. The work of d'Agincourt will be of great assistance in filling up gaps and affording additional illustrations.

Jewish.—Of the ancient nations whose art had a separate existence to that of Greece and Rome I have no illustrations to offer, but we need go no further than the Bible to prove that the art of sculpture had reached great perfection amongst the Phœnicians, Tyrians, and Sidonians. We read, too, of gilded images of gods existing at Babylon, carved in gold, in silver, and in wood, and the ample description of the building of the Temple of Solomon by the Jews, containing incidental art references, seems to show that at that period (1,000 years before the Christian era) the sculptor's art was not then in its infancy.

Egyptian.—Of Egyptian sculpture we have numerous and fine examples in our own museum; and in these we trace an intimate connection between architectural and sculptural arts, and even with the literature of the nation, in the symbolic forms, images of men and beasts, but more especially in the hieroglyphic enrichments with which the surfaces of the architectural members are elaborately covered. In their sculptured figures, besides the colossal grandeur of their size, there is a dignified composure which seems never broken, and it is impossible for us to contemplate them without a feeling of awe, ignorant though we be of their symbolic and mystic meaning. This applies even more remarkably to the animal than to the human forms, for we know that particular animals were held in the highest esteem by the Egyptians. There is, however, great conventionalism and want of variety, as well as an absence of life, tending to prove that their artists were compelled to obey rigidly certain types and established proportions which precluded originality, and that the study of anatomy was restricted by law. This is especially observable in their temple sculptures, but when warlike and domestic scenes are attempted there is an air of greater originality. Their reliefs generally rise very slightly from a sunk or depressed surface.

The marvellous head of the so-called young Memnon is, perhaps, the finest example we have; and although it has the usual characteristic, thick lips, projecting eyes, and rounded nose, it still possesses great dignity and beauty.

Etruscan.—The art of Etruria is preserved to us more particularly in the cinerary urns of the tombs: both these and their sculptures have a close resemblance to the early and stiff character of the Greek school, particularly that of Ægina. Their sculptures were usually in terra-cotta, sometimes of stone and bronze, and show signs of having been painted: remains are also found in the tombs, proving their excellence in working the more valuable metals. The heads frequently possess great beauty, but the draperies and actions of the figures are far inferior to the best works of Greece, the attitudes being exaggerated, and the drawing generally affected and unnatural, but possessing at the same time masculine power, and, though stiff, still show a bold independent treatment, which distinguishes the school of Etruria from that of Greece: in lieu of the grace of the latter, we find violent muscular, almost contorted action, combined with much delicacy of execution.

Greek.—Greek sculpture may be divided into numerous periods; but, as it is my object to describe more in detail the works of the less known ages after the Christian era, I shall say but little on this head. The *archaic* was the most ancient period of Greek sculpture, and I will illustrate it with the example of the temple of Jupiter Olympius, at Agrigentum, which has been so well described by Professor Cockerell. The giants, or "Atlantes," which support the entablature, and attached to the walls of the cella of this temple, form an interesting example of the archaic manner of the Greeks, and are not unlike the works of Etruscan sculpture. The manner in which they subserve the architectural forms is very interesting, and their bold angular and energetic treatment seems to suit them admirably for the object in view, which was to support a superincumbent weight. Their height was 25 feet, and they were constructed with stones having parallel courses with the walls of the cella, and the joints of the alternate courses show vertical joints, and thus form a part of the construction of the cella. You will notice the peculiar character of the heads, with the half-closed eyes, long and prominent nose, and hair arranged in uniform curls. Although these sculptures are supposed to be only about four centuries B.C., consequently not anterior to the Parthenon sculptures, still we see in them a much earlier treatment, proving that the ancient manner was practised later in Sicily than in Greece. The next great period was that of Phidias, when the art made a wonderful advance, and during which the grandest works the world ever saw were executed. The early stiff forms were rejected, and the rigid and inelegant actions of the archaic period became refined; and, instead of the dryness and hardness of their treatment, we find in the works of Phidias the most perfect expression of the human form—graceful and flowing lines taking the place of severe and architectural forms of the early period. The casts exhibited of the Theseus and Ilissus from the Parthenon afford, perhaps, the most perfect example of this style, the originals of which are to be seen in our own Museum. The first has lost portions of the legs, arms, and nose: the size of the original is 5 feet 8 inches by 4 feet in height, and has been called by other authors Hercules: the figure is half reclined upon a rock, covered with drapery and the lion's skin. The wonderful development of the anatomy is to be remarked, and thus is combined the most perfect scientific knowledge and truthfulness of nature, with the highest ideal of beauty. The Ilissus is a figure equally beautiful, from the opposite or western pediment of the Parthenon: it is half-reclined like the Theseus, to suit the raking lines of the pediment: the figure possesses great truthfulness and animation.

The next great period or development was during the age of Praxiteles, who introduced a more sensuous style, and Greek sculpture lost much of its sublime character, but exhibited the utmost technical skill in drawing, especially of figures in the nude. The photographs give illustrations of some of the finest works of this period. 1. The Pythian Apollo, which was found in the fifteenth century, near the ruins of the villa of Nero, at Antium. 2. The Venus of the Capitol, found in the eleventh century, and the exquisitely refined statue of the same goddess, in the Tribune at Florence, which is, probably, of the age last mentioned, and is an instance of the departure from the rigid grandeur of the earlier forms, and displaying the most fascinating and graceful harmony of lines and purity of expression. The Dancing Faun is another marvellous specimen of Greek art at its perfection, differing from the last instance in its muscular development and elasticity of movement: the entire figure seems in action; but there is nothing unnatural or distorted, and the physical quality seems subordinated to that of ideal refinement. 4. A beautiful example of the best period, illustrating the peculiar mode of draping the female figure, is shown in the statue of Pudicitia, or "Modesty," from the Vatican: this figure possesses wonderful grace and dignity, and the folds of the drapery are arranged in broad masses, and have the appearance of being modelled from drapery wetted and applied closely to the body, showing the form beneath. Another photograph shows that marvellous example of refinement and dexterity of execution the group of "Laocoon," found in the ruins of the Baths of Titus. Technical difficulties of execution have evidently been sought for, and it is impossible to imagine anything more perfect than the drawing and anatomical perfections of this work: at the same time the sentiment of the subject is so well preserved that the spectator is agonized at the sufferings of the father and his sons. This perfect work of ancient art throws into the shade the performances of Michelangelo, which appear stiff and cold in comparison.

Roman.—From the decline of Greece, Rome became the great cultivator of the art; and, as the Grecian sculptors found an asylum at Rome, and as the chief works were transferred from Greece as the spoils of war, it is natural that the early works of the Roman school partake of a Grecian character, and supplanted the earlier style which was founded upon the Etruscan. Sculpture now became much more generalized in its adaptations: equestrian statues and public works of every kind gratified their taste for splendour. The base of the column of Antonine, representing the Apotheosis of Antoninus and Faustina, is an illustration of their

* As these diptychs form our principal illustrations, it will be well to understand correctly their object and uses. The word diptych is derived from two Greek words signifying "I fold twice;" when, therefore, more than two leaves are employed for these tablets, they become either "triptychs," or "pentatychs," and so on. They were formed sometimes in wood, but more frequently in ivory; the leaves hinged together in the manner of doors, so as to expose the sculptured sides, and to protect the interior of the tablets, which were prepared with a surface of wax, on which memoranda were written. They were also called "pugillares" from their extreme portability: they were strapped round and sealed with wax, and this appeared to be the ancient mode of conveying the most secret despatches. The diptychs form a most interesting series in the study of ancient art, and many elaborate treatises have illustrated them. They were divided into two grand classes, secular and ecclesiastical: the former were called "diptycha consularia," and the latter "diptycha ecclesiastica." The consuls in the time of the Roman emperors were in the habit of presenting to their friends the first-named class as a memento of their appointments to office, and it is even said as presents to the principal voters who were instrumental in their elevation—a practice differing somewhat from our modern notions of electoral matters. The exterior faces of these tablets were elaborately carved in low relief, usually with a figure of the consul in his robes of office, and illustrations of the Circensian games to which he had probably contributed to pay the expense. Besides proving to us that high dignities were anciently not to be enjoyed without expense, these diptychs afford valuable records of costume and customs, and are the more so, as the inscribed name of the consul frequently furnishes the exact date of the carving. The second class, or ecclesiastical diptychs, were universally introduced in the Church, from the period when the Roman empire became Christian. They were used for various purposes, and were first presented by the consuls to the Church as votive offerings to the altars, and subsequently were used for inscribing the names of converts, great benefactors, the saints canonised by the Church, and of the faithful generally. The subjects of the carving were generally Scriptural; but instances occur in which ancient consular diptychs were converted into ecclesiastical ones, by slightly altering the figures and inscriptions. It is worthy of remark that the carved side is the reverse of the consular diptychs, the carving being on the inside, and the leaves folding over for protection. In later periods these diptychs were multiplied to such an extent that both clergy and laity seem to have been universally possessed of them. They were made smaller in size for portability and economy of cost. Their introduction on the altars of churches probably gave rise to the "retable" and "reredos," or ornamental back to the altar, in the first instance portable, and afterwards in the fourteenth and fifteenth centuries developed into the magnificent specimens we see in foreign churches, in which the "plaques" of ivory form panels inclosed within borders, surrounded by elaborate canopies.

sculpture, in which we trace much of the Greek feeling, whilst the marvellous sculptures in the column of Trajan show an entirely new application of the art, and illustrate the fertility of their invention; but the art became gradually debased, and degenerated into luxurious and capricious forms. The busts and portrait statues of the emperors form an important class at this time, and we find numerous illustrations of historical events.

Many works were executed in the time of the Antonines, but after that became gradually debased, an illustration of which may be seen in the sculptures on the arch of Constantine, which are executed in a rude and clumsy style, and we finally lose all traces of distinctive Roman art in the works of the Byzantine sculptors. In many of the earlier Christian monuments, traces are to be found of the Roman manner, in the catacombs and sarcophagi of the first ages of Christianity.

I draw your attention especially to the sarcophagi of Bassus and of Probus, both executed in the fourth century, and in which the reliefs containing Old Testament subjects might be taken for debased Roman works.

The Ivories will now come to our aid in illustrating the subsequent development of sculpture throughout the early periods of the Christian era, illustrations of which are scarcely to be found in any other material, they thus become doubly valuable.

THE GREY SANDSTONE OF THE FOREST OF DEAN.

THE Forest of Dean stone is less known, perhaps, than it deserves to be. A report on the quarries has been recently made by two gentlemen of Coleford,—Mr. Atkinson, engineer, and Mr. Terrett, builder,—from which we take the following particulars:—

The stone is generally grey or blue in colour, and lies in three series, each of a different degree of hardness, and each applied to peculiar and distinct purposes; but the quality of the stone differs in the various localities from which it is derived. The upper series is generally from 20 to 30 feet thick, the second 40 to 70, then a thin vein of clay from 3 to 7 feet intervenes between. The third series is proved to 130 feet, but how much deeper it may be is unknown; hence, where the three series are found, as in the centre of Birchhill, the supply of stone seems inexhaustible.

The upper series consists of a soft, easily-worked stone, of various degrees of hardness, suited for the manufacture of grindstones, sinks, troughs, gravestones, flagging, sills, and wall coping; all of which can, in the best quarries, be got any size possible of carriage through the arches of the Severn and Wye tramways.

The prices of grindstones at the quarries are about 2d. per inch diameter up to 3 feet high, and up to 7 feet from 10s. to 5*l.* each; flagging, 2d. to 2½d. per foot super.; sinks, 1s. 3d. per foot super.; troughs, 6d. per gallon of 231 cubic inches to the gallon; gravestones, 6d. per foot super.

The second series consists of a grey stone, of harder character than the first, and the third than the second; and the third species of stone is of a blue colour, and a closer, finer grit, and both series run in blocks, of any size possible to be removed. The stone is admirably adapted for dock and railway purposes, and, being easily worked, and capable of being sawed and planed by machinery, to builders and statuaries. It has been used in the construction of Cardiff, Newport, Gloucester, and Swansea Docks; South Wales and Western Valleys Railway; Gloucester and Berkley Canal; Folly Bridge, Oxford; Cardiff Castle; and National and Provincial Bank, Marlborough; and part of Llandaff colleges; assize courts; interior of St. John's and Exeter Colleges; and Taylor and Randolph's Buildings, Oxford; Eastnor Castle and Whitley Court, Worcester; Langton House, &c. &c.

As regards its quality for building, *if placed on its proper bed*, it does not scale, is not affected by the weather, and instances of its durability may be seen at Newland, Staunton, and Mitcheldean Churches, in which the outlines and carving of the oldest pinnacle, and the letters cut on the oldest gravestones, are as sharp and defined as when first worked, some 400 years ago; but it must be observed that only the stone raised in certain localities and from the best quarries is likely to possess these qualities, generally so unusual in sandstone.

The price of blocks at the quarry is 7d. or 8d. per cubic foot, if scappled or picked; and about 7s. per ton if rough. The tenure under which quarries are held is peculiar.

By ancient custom, any person born within the hundred of St. Briavels, and who has worked a year and a day under ground, or in quarrying, is called a free miner, and each free miner has a right to make application to the Crown to grant him a gale of land for a quarry in perpetuity, which, when awarded, becomes his freehold, subject to an acknowledgment to the Crown of 3s. 4d. per annum each grant.

In 1 & 2 Victoria, as the Forest of Dean became more accessible, and facilities of traffic increased, rendering the property more valuable, an Act was passed for regulating the opening and working of these quarries, and a commission was issued to ascertain and confirm the title of those claiming quarries. The quarries granted since the award are leasehold, and subject to a rent.

Each gale or grant is twenty yards in length, and of course quarries increase in value according to the number of lengths lying together. Five and a half lengths (Messrs. Grindell & Co.'s, at Lydbrook) is the largest grant ever made together and at the same time; but at Birch-hill they have, in addition to their own grants, acquired by purchase several lengths lying together, which, together with the superior quality of the stone, renders these quarries undoubtedly the finest in the Forest of Dean.

The principal localities whence the best stone is raised, but yet differing very much in value and quality, are:—1. Birch Hill. 2. Bixlade and Bixhead. 3. Dark Hill. 4. Lydbrook (Barnedge). 5. Knockley Lump. 6. Gosty Knoll. 7. Morgan's Cote. 8. Merry Hole. And the principal quarry proprietors are Messrs. Grindell & Co., Messrs. Trotter & Thomas, and Mr. Townsend.

SURVEYOR OF BRIDGES FOR THE COUNTY OF SURREY.

THE election of the surveyor of bridges and public works for the county of Surrey took place at the general quarter session, on Tuesday last, and resulted in the appointment of Mr. C. H. Howell, of Guildford, and of the Norwich Union Insurance Office, London. Upon the death of Mr. Lapidge, the late surveyor to the county, Messrs. Charles Barry, Currey, Hesketh, Jarvis, Howell, Field, Ashdown, I'Anson, Lett, and other members of the profession announced themselves as candidates for the office. The contest finally lay between Messrs. Hesketh, Howell, and I'Anson, and upon the votes being taken, the numbers were found to be,—for Mr. Howell, 43; for Mr. Hesketh, 19; for Mr. I'Anson, 16.

THE WORKING OF NEW SEWERS.

WORKSOP.

ANY information as to the working of new sewers in our towns must be useful. We may, therefore, note from the *Nottingham Journal*, that during a recent severe thunder-storm, in Worksop, by the new arrangements, flooding in the streets, which has hitherto been common there, was prevented. "The sewers were for the first time brought fairly into action, and performed their work in such a manner as to reflect credit on all concerned. Mr. Rawlinson is the engineer of these sewerage works, which have been carried out under the superintendence of Mr. Landsborough, surveyor to the local board."

The outlet sewer is an earthenware pipe, 15 inches in diameter, and about three-quarters of a mile in length, having flood-water overflows in the low ground. Earthenware-pipes have been used, for the most part, throughout the town. The estimated cost was 6,000*l.*, and the whole of the works, we are told, will be completed within this sum.

There are manholes at numerous points, to enable the sewers to be examined and permanent means for ventilation, with charcoal disinfecting screens. The sewers can be flushed at several points.

DESIGNS FOR LABOURERS' COTTAGES.

AT the beginning of the present year, as well as often previously, we inserted letters and observations touching the want of properly arranged cottages for the labouring classes, with especial reference to cost, and the necessity for three bedrooms, and on the last occasion said that we proposed engraving some plans and particulars. We partly carry out this intention in our present number, giving—

Plans and elevation of double cottages, erected at Parndon, near Harlow, Essex, under the superintendence of Mr. C. H. Cooke, for Captain Slark:

Plans, section, and elevation of double cottages, with flat roof, designed by Mr. N. E. Stevens, in connection with the Society for Improving the Condition of the Labouring Classes:

Plans for double cottages, by Mr. C. W. Strickland, in connection with the Yorkshire Agricultural Society; and

Plans, elevation, and section of cheap double cottage, by Mr. H. Barnes, referred to in a letter in our journal for March 17th of this year.*

All the drawings are made to the same scale, so that the accommodation afforded may be readily compared.

The cottages at Parndon (three pairs of them, fronting to the railway), are built of white Cambridge bricks (brought thirty miles), with red brick dressings and quoins, doors and windows, overhanging roof, *stained* timber where visible, and red brick chimney-stacks. The cost of the six cottages, inclusive of grates, was 507*l.* 10s., or 84*l.* 11s. 6d. per cottage,—certainly a small cost considering the appearance presented. The necessary is at the end of garden, one to each cottage. We append the architect's specification in full. The plan has many good points. An objection may be justly raised to the position of the fireplaces, in the outer walls, by which heat is wasted.

A specification and bill of quantities of Mr. Stevens's design, are printed, and may be obtained at the offices of the Society for Improving the Condition of the Labouring Classes in Exeter Hall. We do not understand that any cottages exactly in accordance with these plans have been constructed, but Messrs. Dove, Brothers, of Islington say,—

"We shall be happy to erect cottages in the county of Herts, agreeably to these plans (with flat roof), for the sum of 170*l.* per pair, if built within a quarter of a mile of a railway station (with a siding), provided that not less than six pairs be erected in one locality. If only one pair be erected, 5 per cent. should be added, and if two pair, about 3 per cent. This estimate does not include any local carriage."

The following is the mode given for forming the roofs:—

"Cover the roofs with plain tiles in cement, laid in the following manner:—Baltic fir laths, to be nailed to the joist; the first course of tiles to be bedded in cement on the laths, the other two courses to be then laid each in such a quantity of cement *only* as shall ensure their firm bed; care to be taken to fill up all interstices with the cement, which can be effected by rubbing the tile well on the cement; the last course of tiles to be left as smooth as practicable, but not to be coated over with cement. The outer edge of the flat roof to project over the face of brickwork 2½ inches all round, and a plain tile to be bedded on the edge so as to form a rim, and stand up above the upper surface not less than 1½ inch, and the tile to be rendered all round with cement, and also the under portion of the flat roof which projects. The flat to be laid with a fall from front and back sufficient to carry off the water, and a space to be left in the rim as an outlet, connected with the iron rain-water pipe by a lip formed with cement.

The cement for the work to be tested, so as to ascertain its qualities, and a greater or less proportion of sand to be mixed with it as shall render it most available for the purposes for which it is to be used."

Careful workmanship, and attention to the foundation, would be requisite, or a roof so constructed would be a constant source of annoyance.

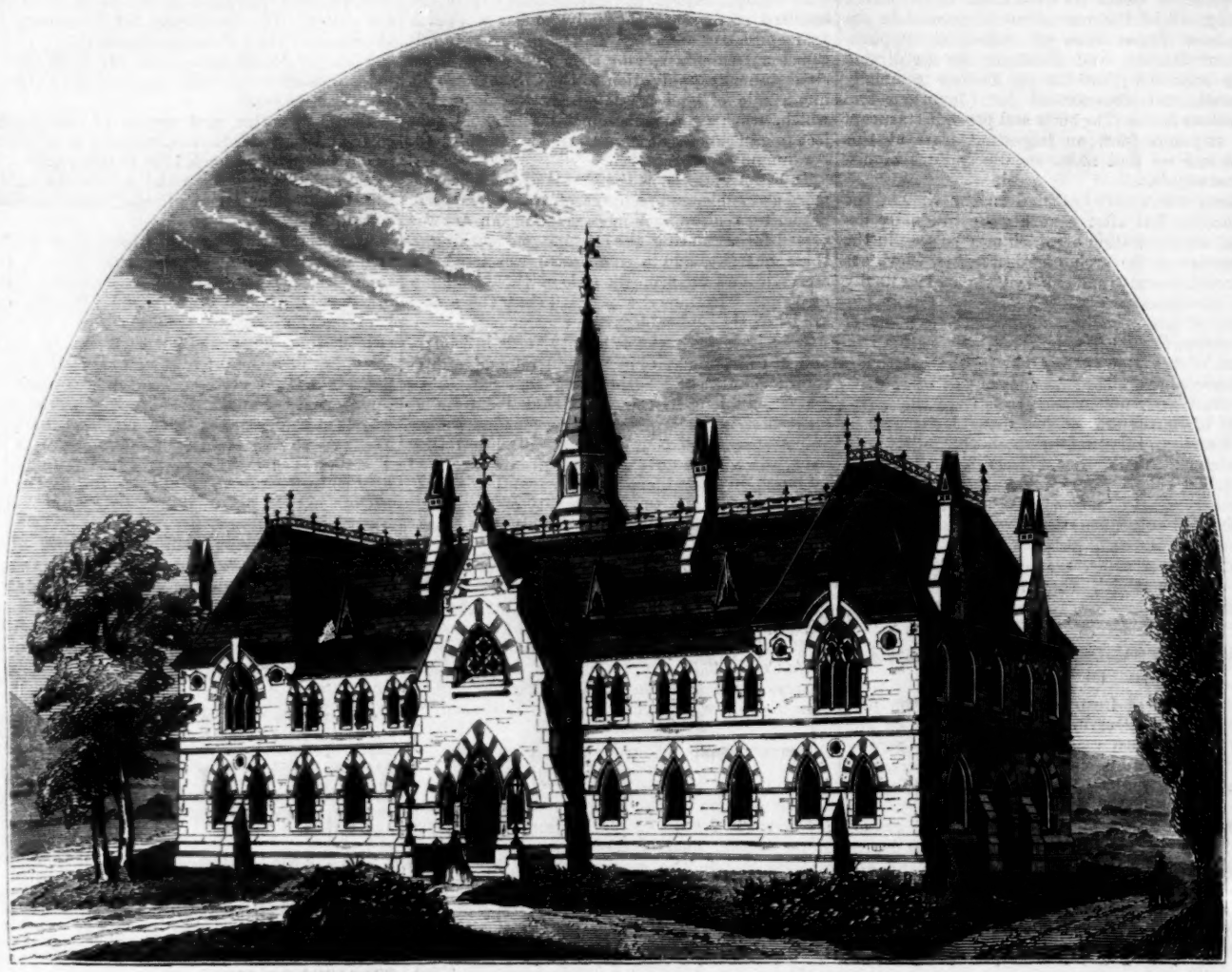
Mr. Strickland's plan is an exceedingly good one, but provides for a larger and more costly building than would be in all cases desirable. They were made with reference to the requirements of a particular competition; and Mr. Strickland himself says, in reply to an inquiry with which we troubled him;—"I think them larger than is either requisite or desirable for the generality of labourers' cottages, especially in parts of England where fuel is dear. But it cannot be too much insisted on, that there is no absolutely *best* form of cottage or anything else. A great variety is wanted to suit families very variously circumstanced. I hope before long to see another display of plans of other forms, at some meeting of the Yorkshire Agricultural Society, and that it may be as interesting and instructive as the last one was."

In brick-built cottages, hollow walls, with a view to warmth, and dryness, are much to be desired. The walls should be plastered inside. Good drainage and the means of ventilation are of course absolutely necessary.

Of Mr. Barnes's design, the author says,—

"I wish to observe that my plan offers no attraction as an ornamental or picturesque object in the landscape: its advantages are simply giving a large available area for a small outlay: as I said before, it must be adapted to local circumstances. In my sketch I have presumed mud walls on stone or brick footings and plinth. These kinds of walls (particularly in clay districts) form warm, dry

* P. 174.



THE FINLAY ASYLUM, QUEBEC, CANADA, EAST.——MESSRS. STENT & LAVERS, ARCHITECTS.

and durable dwellings. It should be properly worked or finished off with an outside coat of rough-cast. Thatch, in this case, should be the covering material. This, especially in rural districts, will enable timbers of home growth to be employed." The cost of such cottages he places at 70*l.* each.

If the wretched hovels in which thousands of our labourers spend their lives were brought prominently into view, new cottages would be built for very shame.

SPECIFICATION,

Of the several artificers' work required to be done, and of the materials to be used in the erection of double cottages for Captain Slark, at Parndon, in the county of Essex, according to the designs and under the superintendence of Mr. Charles H. Cooke, architect.

Excavators' Work.

Dig out ground, the necessary depth and width for foundations of the several walls: fill in and well ram round brickwork when built.

Ground beneath sitting-rooms to be levelled 9 inches below floor joists.

Excavate for all drains, &c.

Ground to be properly levelled at completion of works.

Bricklayers' Work.

The brickwork to the several walls to be commenced on proper and sufficient footings, and carried up the requisite heights and widths, according to the true and evident intent of the drawings.

All the brickwork throughout to be of the best sound and hard clamp bricks, the external facing to be of picked white bricks, and the dressings to windows, angles, &c., to be of the best burnt kiln bricks; every course to be well flushed with mortar, neatly pointed, and the joints struck.

Chimney flues to be well pargetted and cored, the chimney stacks to be carried up above roof in good sound red brickwork.

Proper discharging arches to be turned over all door and window openings.

Iron bars, 2½ inches by ½ inch, to be laid over all chimney openings, turned up and down at ends.

Provide and fix two cast iron gratings under the floor of each sitting-room.

Proper trimmer arches to be turned to all fire places.

The scullery, closet, and closet beneath stairs, to be paved with brick, on concrete 4 inches thick.

A copper to be built up in brickwork, and set therein a good 20-inch galvanized iron copper and furnace complete.

The walls, where described, to be lime-whited internally, to be worked fair with a neat joint.

Provide 50 feet of stoneware drain pipe to each cottage.

Masons' Work.

The steps to entrance and back doors to be hard tooled York stone.

The paving to lobbies to be of brick, on edge, laid in mortar.

Provide and fix plain slate chimney-pieces to sitting and bedrooms, with 1-inch shelf, &c. complete.

Provide a small sink in scullery, 3 feet by 1 foot 9 inches, and 4 inches deep.

Provide front and back hearths of rubbed York.

Carpenters' and Joiners' Work.

All the timbers used in these works, not otherwise specified, to be of the best Christiana deal.

The roof to be framed as shown on drawing, with the several scantlings set forth in the following schedule:—hips and ridges, 7 inches by 1¼ inch; rafters, 4 inches by 2 inches; valley rafters, 8 inches by 1¼ inch; collars, well spiked to rafters, 4 inches by 2 inches; wall plates, dovetailed at angles and pinned, 4½ inches by 3 inches; battens for slates, 2½ inch by ¾ inch; ¾-inch eaves boards, 7 inches wide; 1-inch valley boards, 9 inches wide. Provide tilting fillet round the several eaves.

The rafter shown as barge board to be of deal stained, 7 inches deep by 2½ inches: the wall-plates and ridge-piece are also to be pieced on with a larger scantling, 6 inches by 4 inches where showing on the front gable.

The roof over the entrance doorway to be formed with a plate 4 inches by 3 inches, supported by wrought deal brackets let into wall, and rafters 3 inches by 2 inches.

Floors to living rooms, on sleepers 4 inches by 3 inches; bedroom joists 7 inches by 2½ inches; wall-plates 4 inches by 3 inches; and 1 inch floor boards.

All the partitions to be properly framed together, with heads, sills, and uprights, 3 inches by 3 inches; quartering, 3 inches by [illegible] inches; braces, 3 inches by 3 inches.

The windows in front and back of cottages to have solid and beaded deal frames 4 inches by 3 inches; oak sunk and weathered sills, with 1¼-inch casements, to open inwards (one casement to each window), hung to frames with 2½-inch butts, and with a suitable fastening and set-open bar, the bottom rail to be framed weather-tight. Provide to same ¾-inch beaded lining and moulded top to plastering, and 1-inch wrought and rounded window boards.

The external doors to be of 1-inch deal, ledged and cross braced, with ¾-inch wrought, rebated, and chamfered boarding, hung to solid rebated, and chamfered, frames, 4 inches by 4 inches, with 16-inch cross garnet hinges, with stock, lock, and fastenings complete.

The internal doors throughout to be of 1-inch deal, ledged and braced, and covered with ¾-inch wrought, rebated, and chamfered boarding, hung to wrought, rebated, and beaded linings, with 3½ inch butts.

Provide and fix a staircase, having ¾-inch yellow deal risers and 1-inch treads, rounded nosings, glued and blocked, and all requisite strings, carriages, &c. complete. Trim out and form bulkhead, to give sufficient headroom to staircase.

Provide and fix in pantry two tiers of 1-inch wrought deal shelves, 12 inches wide, on proper bearers.

Smith and Ironmonger.

Provide all necessary air gratings and other ironwork that may be required.

Provide a good 20-inch galvanized-iron copper, with furnace, doors, dampers, complete, as specified.

Provide and fix all round the building 4-inch cast-iron half-round eaves gutter, with stacks of 3-inch cast-iron rain-water piping, with all necessary head-shoes, &c., and properly trapped to drains.

Provide for fixing to stoves only.

Slater and Plasterer's Work.

The roofs to be covered with Bangor countess slating, 2½ inches lap, patent-slate ridge; double course of slates round eaves, pointed inside with hair mortar.

Lime to be of the best quality. Sharp, clean, and well-washed sand.

Lath-plaster, float and set the ceilings throughout.

Render, set, and twice colour walls, &c.

Lath, plaster, set partitions.

Skirting to sitting-room and lobby 4½ inches high.

Plumber, Painter, and Glazier.

Line the valleys with 5 lb. milled lead, and same for flashings round chimney stacks.

Glaze all windows with seconds crown glass.

The whole of ironwork usually painted to have three coats in oil.

The rafters, wall-plates (where visible), the external doors, frames, and brackets, to be stained and varnished.

THE FINLAY ASYLUM, QUEBEC, CANADA, EAST.

THE first stone of the Finlay Asylum, on the Foy Road, Quebec, was laid on the 10th of May. The building, of which we have engraved a view, is about 110 feet in length, by 55 feet in width, and is to be erected in the Gothic style of architecture. It is two stories in height, with basement and sick wards at the rear. It is contemplated, also, to carry up a Chapel at some future period, attached to the edifice.

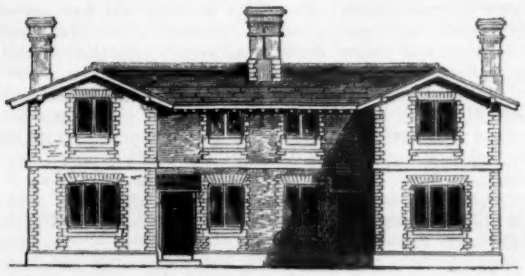
The building will be constructed in the granite of the district, having cut stone dressings and plinths, with variegated arches over each aperture.

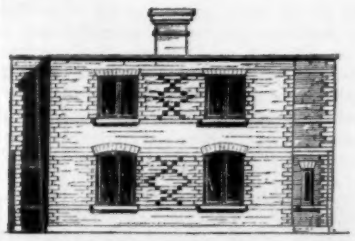
The foundation stone was laid by Mrs. Hamilton, one of the chief supporters of the institution.

Messrs. Stent & Lavers are the architects of the building.

Canada is expecting with impatience the promised visit of the Prince of Wales.

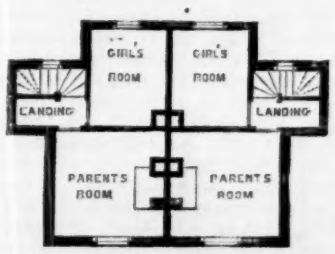
DESIGNS FOR LABOURERS' COTTAGES.

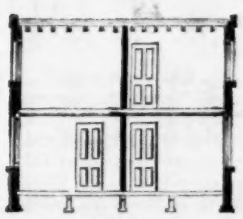




FRONT ELEVATION

Double Cottage, Parndon, Essex. Mr. C. H. Cooke, Architect.





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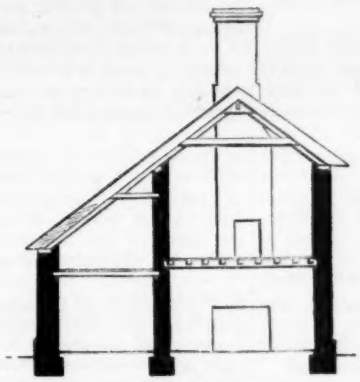

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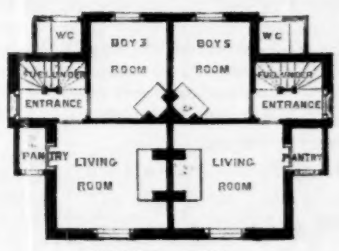
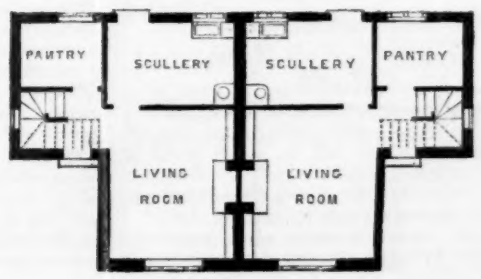
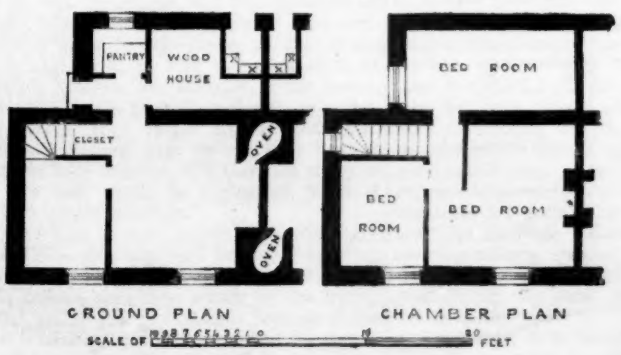


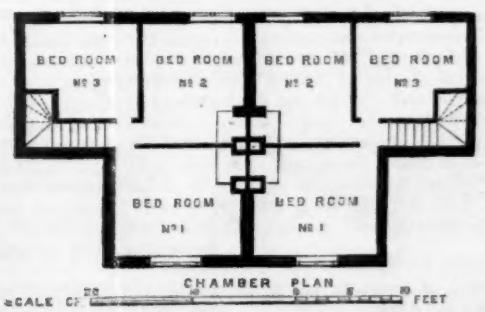
Double Cottage, with Flat Roof. Mr. N. E. Stevens. Architect.

ELEVATION





Mr. H. Barnes's Cottages.



Mr. Strickland's Plan.

THE FRENCH VISIT TO ENGLAND.

THE Orphéonistes have performed their pleasing and useful mission, and the army of 3,000, who invaded England with such witching harmony, will, by this time, be scattered throughout various districts of France, and many an account of the wonders of London and its Crystal Palace will be reported to old and young in the great neighbouring capital, in the manufacturing towns and cities, and in rural places where the sight of an Englishman is uncommon, and where his peculiarities, till now, were only known by old and unfavourable traditions and by garbled and unjust modern accounts.

We hope that the visit which has just been made will help to remove, to a certain extent, unfavourable and wrong impressions, although nothing could have been worse than the arrangements made for the first reception of the strangers. It was painful to note the preparations made for some of the party in the occupied taverns of the cattle-market: their comfort might have been as great in some of the lairs for sheep and oxen, so appropriately adjacent. And some who sought for lodgings elsewhere, and were willing to pay, fared worse. We have reason to believe, however, that the blame, at all events, did not rest with the Crystal Palace management. The agents were, we understand, French, and were appointed by the Orphéoniste authorities themselves, their society being on this, as on other occasions, bound to make all arrangements, while the members give their own personal exertions as amateur musicians, gratis. So far from the Crystal Palace management being in any way to blame,—unless, indeed, they should have assisted the French agents with their advice and knowledge of London in the outset,—when it was found that the agents, being strangers and without means sufficient at the moment, could not get arrangements made for the accommodation of their constituents as they arrived, the directors of the Crystal Palace, as we are told, at once advanced them a sum of 1,000*l.* to facilitate matters.

The Orphéonistes appeared to be of all grades, from the prosperous country gentleman and the well-to-do manufacturer to the respectable mechanic and art-workman. Some had brought their families, and it was curious to note the physiological peculiarities of those coming from the different parts of the extensive empire of France: in some might be observed the marked features and complexion of the Normans, and in others the more florid and massive forms and fair hair of the German races.

Our great buildings, and, as far as possible, their contents, were critically examined. Gog and Magog held a numerous levy of the guests: the courts of justice were visited; and, according to taste, some wandered into St. Paul's, Westminster Abbey, and the vast new palace for our Parliament. Their criticisms in certain instances might be useful to us.

Trusting that this is but the forerunner of other and even more extensive visits of this kind, to be returned, as this should be, in some well-organized and judicious manner; it would be worth while to consider how the greatest amount of good could be done, and how we could best manage during such friendly invasions to gain the greatest amount of useful information, and promote to the largest extent that mutual acquaintance, and those kindly feelings, which are so likely to obviate the stern and terrible advent of war. It seems to us that, provided proper means were used for the reception of such visitors, who may be considered as ambassadors of peace, harmony, and good fellowship, between one nation and another, it would be an advantage if, on such occasions, a certain number of persons who are skilled in both languages, and well informed on particular points, should volunteer to form committees, and agree to take charge of such of the guests as might wish to visit such institutions as our British Museum, for example, or the Tower, and act according to their discretion in any other way in which they might be best informed. Though as a general rule we are kept hard at work in our busy country, still there are many to whom this task would be a pleasure, while it would be a benefit to others.

We know that on many points our visitors have returned home with improved feelings respecting us; and this advantage has been mutual; for thousands in London have been struck by the kindly spirit and polite and gentlemanly bearing of the amateur musicians; and those who had the opportunity of conversing with some of them will remember with pleasure the enlarged views, in connection with commerce and art, which were expressed, and the anxiety that only in this way should a struggle take place between us. Unfortunately there are less agreeable feelings amongst classes over the water, and uncertainty in another way; but undoubtedly such a gathering as that which has recently taken place will strengthen the peaceful efforts of the best disposed section of the French nation.

All this good is rendered possible by the modern improvements made in the methods of transit: but for steam-packets and locomotives, so large a body could not have been gathered from the various and distant provinces of France, and brought so readily to our shores.

That a decidedly favourable impression has been produced upon our recent visitors by their reception was very clearly manifested by them on every occasion in which they appeared before the English public, especially on Saturday, when their hearts were opened, and their real feelings betrayed by the genial influence of an English "collation," even though "cold," accompanied as it abundantly was, by the best "palale," of which many of them will doubtless long retain a pleasant remembrance. Indeed, their friendly demonstrations, not only on this, but on all the previous occasions, were certainly far more cordial and unreserved than those of our less demonstrative (but not less warmhearted and friendly) fellow-countrymen: we hope they appreciate the difference of national temperament, and do not ascribe the difference to coldness of feeling on our part, but to its true and only cause—coldness of manner. One of their directors, it is satisfactory to know, has, on their part, thanked "a thousand times" the English nation for the manner in which they have been received; and the response of the whole body, through their chief leader, M. Delaporte, to the address of "the friends of peace" was all that could be desired.

THE LIBRARY OF TRINITY COLLEGE, DUBLIN.

THE old roof of the library, Trinity College, Dublin, was found some time since to be in a state of hopeless decay; and, after receiving various plans for its reconstruction, the result has been the adoption of a design by Messrs. Deane & Woodward, which will give much greater height and importance to the apartment. It had formerly a flat plaster ceiling: it will now be vaulted in the centre. The book accommodation of the library being very limited, and the fact that in forty years the number of books would double, induced the Board to adopt a plan, not only for renewing the roof, but also for increasing the book accommodation. These two points are accomplished very cleverly in the plan decided on.

The room is 240 feet long, and the span 44 feet. The architects have put up a temporary V roof, which enables persons to use the library while the work proceeds. The cost will be about 7,500*l.* Messrs. Cockburn are the contractors.

WORKS IN PARIS.

THE transformation of the flower plantations of the grand avenue of the Champs-Elysées proceeds rapidly. For some days past a considerable number of workmen have been in possession of the square plot of the *Cirque*, where masses of shrubs and flowers are to be placed, as on other portions of this delightful promenade. Meanwhile, the elegant fountain called Les Quatre Saisons, having been coppered over, is being put in its place again. The flowers to be planted in the Carré du Cirque were recently purchased, by the Municipal Council of Paris, in Holland, and most of them are in full bloom. The rhododendrons, the kalmias, the azalias, and the cannas are said to be very fine specimens.

The environs of Paris, as well as the capital, receive fresh improvements. In the park of Vesinet, spontaneously fixed upon by the Parisians as a site for country seats, a second and vast lake has been formed; and the situation, naturally picturesque, has been rendered more so by the earthworks thrown up, to render the grounds more undulating. Water in abundance is to be supplied by powerful steam machinery, which the engineers are putting in place in the buildings near the reservoir. Moreover, the two bridges over the railway, uniting both sides of the park, are finished; so that, henceforward, Vesinet will rank among the most delightful summer residences about Paris.

A new loan is to be raised by the Municipal Council, amounting to 150,000,000 francs, for the further embellishment of Paris, sanitary works, and the construction of new boulevards.

EXHIBITION OF STEAM PLOUGHS IN THE NETHERLANDS.

AN exhibition, open to all the world, of steam ploughs and reaping-machines, is to be held in the Netherlands, from the 5th to the 13th August next, at a place called Wilhelminapolder, near Goes, province of Zealand. Prizes will be awarded for the best steam-engines for labouring and turning the ground, so as to replace advantageously horse work and human labour. First prize, 1,200 florins; second prize, a gold medal. For reaping-machines,—First prize, 500 florins; second prize, a gold medal. Competitors should address, for information, to the secretary of the Royal and General Agricultural Society of the Netherlands, at La Haye, stating the nature of the machine and its price. They are to be on the spot (Wilhelminapolder) before the 3rd of August. The council of the society furnish at their own cost the necessary men and horses for the experiments, but each exhibitor must have at least one competent person to mind the machine: the council also furnish the use of a building for storing the above in safety. The Government have consented to allow the free importation of the implements, insisting, however, on the provisional payment of the duty as a guarantee of good faith, which will be reimbursed on their return to the original country. Arrangements are to be entered into with the different railway and steamboat companies to have these machines transported at reduced prices, and further particulars will be announced as to this step.

TAUNTON.

THIS ancient and loyal town is not behind its contemporaries in "the march of improvement." Many of the public buildings have been considerably beautified, or re-erected, within a few years. The well-known St. Mary's Tower is rapidly rising under the care of a townsman. St. John's Church, under Mr. Scott, is nearly ready for the roof, and promises well. The Roman Catholics are now in possession of their new church, lately opened. Of civil buildings, there is a new shire-hall recently erected, besides a large hospital, institution, archæological museum, and many others. The private houses are all full, as well as the mansions in the neighbourhood; and the town, since the introduction of the Public Health Act, has attained a high character for health.

THE HANOIS LIGHTHOUSE, GUERNSEY.

THE *Hanois* are rocks on the west coast of Guernsey. On the Biseau, one of these rocks, a lighthouse is about to be erected. The base of tower is 23 feet 7 inches; the height of stonework 90 feet; and the least diameter is 17 feet.

There are to be six rooms in it. The works are not to be done by contract. They are to be executed under the guidance of the engineers of the Trinity Corporation, Messrs. Walker, Burges, and Cooper. The resident engineer is Mr. W. Douglass.

This lighthouse, when erected, will supply a desideratum.

PROPOSED GAS-WORKS FOR BAHIA.—BRAZIL.

WE have before us the prospectus of the Bahia Gas Company (limited), with a capital of 100,000*l.*, in 5,000 shares of 20*l.* each. The following information is gleaned from the prospectus, which may be interesting to our readers:—

"Bahia is a seaport city, the second in size and importance in the empire of Brazil. The population of the city is 180,000. The following statistics are from an official return:—palaces, 4; public establishments, 28; fiscal ditto, 7; hospitals, 9; churches, 58; public institutions for education, 75; manufactories, 74; printing establishments, 13; workshops, 676; alimentary stores and shops, 678; other stores and shops, 660; wharfs, 76; exchange rooms; railway station, 1; private houses paying the government tax, 5,910. The Bahia and San Francisco railway, now in course of formation, will tend greatly to increase the commerce of this city. The first section, viz., that starting from Bahia, will shortly be opened for traffic."

The prospectus gives the following cheering account of the state of the gas-works at Rio de Janeiro:—

"The shares of this company are at a considerable premium, having advanced in value nearly 50 per cent. The profits realized have each year increased, the dividend in 1855 being at the rate of 8*l.* 10*s.* per cent. on the capital, while the pro-

fits of last year, 1859, allowed of a dividend equal to 16 per cent. In addition to this, 10 per cent. of net profits is carried annually to the reserve fund."

We have in our pages frequently alluded to the progress of the Pernambuco Gas Works, which were completed by Messrs. E. T. Bellhouse & Co., of Manchester, last year. This undertaking is thus alluded to in the prospectus:—

"The Pernambuco Gas concession, with terms nearly similar to those of Bahia, was considered to be so profitable that it was purchased from a company in course of formation in London, and carried out by private enterprise. The demand made for gas by private consumers has been so large, that additional hands and fittings have been written for, to meet the requirements."

The document before us further states, that Messrs. Law & Blount, of London, are the engineers for the company; that the direction of the undertaking will be in London; that the necessary arrangements have been made with the *concessionnaire*, whereby the privilege is secured to the company; that it is probable that a net income of 16 per cent. will be realized on the capital expended; and that the prospects of the undertaking are most favourable.

ANNUAL MEETING OF THE SURREY ARCHÆOLOGICAL SOCIETY.

THE seventh annual general meeting of this flourishing society took place at Reigate on the 27th ult.; under the presidency of the Hon. W. J. Monson, M.P.

The members of the society assembled in large numbers from different parts of the county at the Merstham railway station, at eleven o'clock in the morning, from whence they proceeded to the parish church, where Mr. Alfred Heales, F.S.A. attended, and gave a sketch of its history, calling the attention of the company to objects of interest.

The company then left for Chipstead Church, where the Rev. P. Aubertin, the rector, described the edifice at great length.

Gatton Church was next visited, and was described by the Rev. J. C. Wynter.

The party then proceeded to Gaston Hall, the seat of Sir Hugh Cairns, which was thrown open to their inspection, and in the new marble hall of which the business of the meeting was transacted. Here the chairman congratulated the meeting upon the fact that the funds of the society were in a very prosperous state, and that the number of members was 606, being an increase of 32 during the last year.

The company afterwards proceeded to Reigate, and visited the parish church, a description of which was given by Mr. W. Hart, F.S.A.

The Priory, the seat of Earl Somers, was the next point of attraction, and the Baron's Cave was visited by a large number of people, both before and after dinner, the passages having been lighted up for the occasion. When the company assembled in the principal passage, Mr. John Lees, of Reigate, made some general remarks upon the caves.

The annual dinner took place at the White Hart Hotel, when about 120 persons sat down, including ladies of the party. A conversazione was afterwards held at the Town Hall; and, during the evening, lectures were delivered by the Rev. Mr. Mayhew, of Newdegate, Mr. W. J. Hart, and Mr. Richardson.

NEW BUILDINGS FOR THE ROYAL BANK, FOSTER PLACE, DUBLIN.

THE directors of the Royal Bank have been erecting a cash-office of large dimensions. The new hall measures 84 feet by 56 feet, and 35 feet to the centre of the circular roof. The walls and ceilings are elaborately panelled. The light is admitted through the circular part of the roof, in plate-glass panels surrounded by enriched mouldings. The effect is increased by means of corresponding mirrors in similar panels, at each side of the centre between the ornamental ribs spanning the vault. The flooring is of tesselated tiles, extending round each side of the semicircular counters, within which are the departments of the principal officials and their assistants. The peculiarity about the erection is the suspension on iron beams and columns, unusual in size and weight, of the entire of the old buildings facing Foster-place, measuring 56 feet by 40 feet, by 28 feet in height. The architect (Mr. Charles Geoghegan) has had numerous difficulties to surmount, and has been obliged to resort to a novel method of shoring the superstructure, to which we have before referred. The works have been executed by Messrs. Crowe. Messrs. Courtney & Stephens have supplied the iron beams and columns, under the special direction of Mr. Anderson. The entire countering and the desks are from the establishment of Mr. Beakey, and the marble mantel-pieces were furnished by Mr. Manderson. The *Evening Mail* says,—"The building in every part proclaims the hand of an accomplished architect, who has encountered and overcome enormous difficulties, and produced a hall the singular beauty and the admirable arrangements of which cannot fail to arrest the attention of the public on the day of opening."

CHURCH-BUILDING NEWS.

Stamford-hill, Middlesex.—The foundation-stone of the new district church of St. Ann's, Hanger-lane, Stamford-hill, was laid on Tuesday last, the 3rd instant, in the presence of a large assemblage of the founder's friends and the residents of the district, by Mrs. Newsam, the wife of Fowler Newsam, Esq., of Stamford-hill, at whose sole expense the same, together with a spacious parsonage-house adjoining, are to be built. The design is by Mr. Talbot Bury, architect: it has an apse and transepts, and will seat 600 persons: it will be highly finished, and when completed will cost about 8,000*l.*, and the parsonage 2,000*l.* The contract for both has been taken by Mr. Myers. Two years back, the munificent founder of this church erected in the immediate vicinity a spacious school and some model cottages.

Wolverhampton.—The foundation-stone of a new church, dedicated to St. Luke, has been laid at Blakenhall, in the parish of St. John, in this town. This is another of the memorial churches to the late Archdeacon Hodson. The site is easy of approach. The style of architecture will be Early English, and the exterior walls will be of dressed bricks, ornamented with coloured brickwork, and stonework. At the south-west corner will be a tower, upon which it is proposed ultimately to place a spire. There will be at the western entrance an arcade, decorated with iron shafts. The interior of the church will consist of nave, aisles, and large chancel, which will also contain aisles. There will be no galleries. The roof will be open-timbered. The extreme length of the edifice within the walls will be 130 feet, and the width 52 feet, but arrangements have been made for future extension, if needful, by means of transepts. The shafts of the pillars on either side of the nave will be of cast-iron, with ornamental wrought-iron capitals. The ends of the pews will also be of decorated iron, while the bodies will consist of stained deal. The church will be capable of accommodating 700 adults and 200 children, mostly free. Mr. G. T. Robinson, of Leamington, is the architect; and Messrs. Lilley, builders, of Measham, have undertaken to complete the church for 2,800*l.* This sum, however, does not include land, fences, architect's commission, &c., which are computed at 1,500*l.*

Nantwich.—Nantwich Church restoration approaches completion; the only unfinished part, the chancel, now being restored at the sole expense of the patron of the living, Lord Crewe. The work is being carried out under the direction of Mr. Scott. It is satisfactory to find, according to the *Macclesfield Courier*, that, with trifling exceptions, the stone vaulting, with its carved bosses, so long disfigured by thick coatings of plaster, is as perfect as when first chiselled. The canopied stalls of oak, with their quaint carvings, had in many parts been barbarously mutilated, but will be restored. The east window consists of a repetition of small windows of flowing tracery, so combined as to give the whole the appearance of Perpendicular work. The large window in the south transept has come out with effect since the stained glass, by Mr. Wailes, has been placed there by Mr. G. F. Wilbraham, in memory of his ancestors.

Brecon.—The following tenders for the restoration of Trallong Church have been considered at a vestry meeting:—

Griffiths & Son	£530	0	0
Hargest & Price	510	0	0
Williams & Son	450	0	0
Williams (accepted)	402	0	0

The plans, &c., were prepared by Mr. C. Buckeridge, of Oxford, architect. The work is now in progress, and is to be completed by the 1st of December next.

Manchester.—The corner-stone of a Methodist free church has been laid at Openshaw, near Manchester. The intended edifice will comprise a chapel to seat 310 adults, and a school to accommodate from 300 to 400 children. The building will be of brick, with white bands and stone dressings. The architect is Mr. R. M. Smith, of Manchester, and the contractors are Messrs. B. & W. Hoyland, of the adjoining township of Bradford. The cost will exceed 1,000*l.*; towards which amount 550*l.* have been already raised.

Leeds.—The foundation-stone of a new Jewish synagogue has been laid in Belgrave-street, Leeds, by Mr. M. Gluckstein, president of the committee of the congregation. The building is to be erected from a design by Messrs. Perkin & Backhouse, of this town, architects; and the contracts for its erection are let as follows:—Bricklayers' work, Messrs. W. Simpson & Son, Leeds; joiners' work, Messrs. Terry & Hill, Leeds; slaters' work, Mr. W. Pycock, Leeds; plumbers' work, Mr. T. Bedford; painters' work, Mr. E. Fearnside. The new synagogue is to be in the Byzantine style of architecture, and will cost, it is estimated, 1,200*l.* It will contain accommodation for 300 persons.

Preston.—The architects of the church at Preston, noticed in our last, are Messrs. Hugall and Male.

Dunsforth.—The first stone of St. Mary's Church, Dunsforth, has been laid by Mr. W. F. Scholfield. The contractors are Messrs. Freeman, Kettlewell, and Bramley; and the architects are Messrs. Mallinson & Healey.

PUBLIC BUILDINGS IN THE PROVINCES.

Bagshot-heath.—The State Asylum for Criminal Lunatics, at Broadmoor, on Bagshot-heath, now approaches completion. The site comprises 290 acres, and the land, which is of an undulating character, falls towards the south, and is sheltered from the north and east winds by a belt of wood. There is a stream yielding from 50,000 to 100,000 gallons daily, of soft water. The buildings are erected upon the northern part, from which extensive views are commanded. The Commissioners in Lunacy state that it has been deemed sufficient at present to provide accommodation for 400 males and 100 females.

Malvern.—A new Petty Sessions-room and Police-station have just been completed. The building stands on the road entering Malvern from the Link. The materials are red brick, with Bath stone dressings. In consequence of the rapid slant of the ground at the site, the building is only one lofty story in height towards the road, but is three stories at the back. The upper story is occupied by the large room in which the magistrates meet, with a retiring-room for the magistrates at one end, and a waiting-room for witnesses at the other. On the east side is the principal entrance, with a charge-room on one side, and police-room on the other. The justice-room on the south is 35 feet long, 19 feet wide, and 15 feet high. The architect was Mr. Rowe, the county surveyor, and the contractor Mr. Perkins, of Malvern.

Birmingham.—The foundation stone of the new Magdalen Asylum, or refuge for penitent females, has been laid by the Earl of Dartmouth. The site is at the farther end of one of the new streets opened on the Rotton Park estate, Hagley-road. The elevation of the building is in the Italian style, of an inexpensive character. The architect is Mr. Thomas Naden.

Manchester.—Contracts have now been accepted for nearly all the work connected with the new Manchester Assize Courts in course of erection in Bury New-road, Strangeways. The first contract, for the excavating, was that of Messrs. Gilbert & Sharp, and the cost was about 1,200*l.* Then followed the contract for the brickwork and flag foundations, stone footings, &c., for which the tender of Mr. Robert Neill, of Strangeways, was accepted, and the cost has been about 1,700*l.* The work is now to the level of the ground floor. The original estimate was that the builder's work proper should not exceed a cost of 70,000*l.*; but the committee have since that time arranged with Mr. Alfred Waterhouse, the architect, for somewhat extending the plans, so as to give rather more space for the court rooms and the surrounding corridors, and for the addition of a projecting entrance from South-hall-street. In addition to this a rise has taken place in the value of building materials and of labour; but the contract of Mr. Samuel Bramall, of Hulme, is understood to be 69,997*l.* Mr. Bramall has undertaken to complete his work by the 1st of May, 1863. The building is to be warmed and ventilated by water apparatus, for the supply of which the tender of Messrs. Hayden, of Trowbridge, has been accepted; amount, 2,600*l.*

STAINED GLASS.

Doncaster.—Arrangements are being made for the completion of a stained-glass window at the east end of St. James's Church. The work has been entrusted to Messrs. Clayton & Bell, of London. This window was a spontaneous offering of the officers and workmen engaged in the Great Northern Railway Plant, as a mark of personal regard to Mr. Denison, the chairman.

St. Peter's Church, Oldham.—Messrs. Edmundson & Son, of Manchester, have just placed in this church four stained glass windows, three in the chancel and one in the west end. The subject in the centre window in the chancel represents the Last Supper — Jesus seated with the Twelve Apostles—John sorrowfully resting his head on the breast of the Saviour. The window on the left is the Crucifixion, and on the right the Resurrection. The old windows are left in their places, and the new ones of stained glass are placed in the inside, leaving a space of 15 inches between the old and the new windows. These spaces are filled with gas burners, which are at night lighted up, so that the subjects in stained glass are seen almost as effectively as in the day time.

THE GOLD EFFECTS IN MEDIÆVAL MANUSCRIPTS.

MY notice has just been called to an article in the *Builder*, of June 23rd, wherein a discussion on the gold effects obtained in Mediæval manuscripts is reported as having occurred at the last meeting of the Royal Institute of British Architects. The discussion appears to me so meagre and unsatisfactory, that I venture to add some remarks on it, and to give the results of my experiments on the subject. Just now so much attention is being deservedly paid to the exquisite models bequeathed to us by our forefathers, that I hardly think it necessary to apologize for occupying your valuable space.

As regards the discussion, it is quite true that the processes mentioned by old writers, such as Theophilus, will not work. The white of egg and plaster of Paris, from a very coarse groundwork, and would, I imagine, be best laid on with a trowel, an instrument not in request for delicate illuminated work; besides, the gypsum is much too gritty to take a burnish, and the composition would be certain to crack off. I cannot agree with Mr. Burges that the foundation is prepared in gesso, having (as I understand his remarks), a superposed opaque burnishing layer. I have carefully examined, both with the naked eye and with lenses, the damaged surfaces of raised gilded manuscript ornaments; and I am satisfied that the ground is homogeneous, and that the gold used is extra thick leaf gold, all but free from alloy, if not chemically pure. That the gold is extra thick I am certain, not only from its solid plate-of-metal-like appearance, but also from the fact that it is only within the last few years that the trade has succeeded in beating gold so thin as the three hundred thousandth of an inch: that it is leaf gold I am confident, from examining with powerful lenses, under which it is easy to detect the grain of the gold, and the places where different leaves join. The purity of the gold is proved thus:—Use common yellow gold: gild and burnish a surface with it: repeat the experiment with fine gold in leaf. Hold the two side by side in different lights, and it will be seen that in some the common gold shows black, but that the pure gold shows uniformly a soft yellow tone, such as is always seen in old illuminated manuscripts. I speak more confidently with reference to twelfth, thirteenth, and fourteenth century manuscripts, as that is the period to which I have mostly directed my attention.

After numerous experiments, I believe I have succeeded in solving the groundwork problem. I have made a composition which reproduces the gold effects, both flat and raised, mat and burnished, of the Middle Ages. I regret that I do not feel at liberty to make public the nature of the "mediæval gold-body," as it is called; for I have disposed of the receipt to Messrs. Barnard, of Oxford-street, and I can, therefore, no longer consider it as my property. I may state, however, that the manufacture is excessively complicated and difficult, and that, even were the ingredients known, amateurs would most likely fail to produce the proper result. Messrs. Barnard have handsomely offered to supply the mediæval gold-body gratuitously, to any of the gentlemen who took part in the discussion, and who are desirous of experimenting. Let me caution those who are not in the habit of handling leaf-gold (and especially the leaf-gold mentioned above—beaten out of fine gold), not to expect complete success at first.

Some specimens of the effect produced by the mediæval gold-body have been shown to several first-rate judges, among whom may be mentioned several gentlemen connected with the manuscript department of the British Museum, Mr. Warren, instructor to the royal family, and Mr. Noell Humphreys. They are unanimous that the effect is the most perfect they have ever seen. I may mention that the gold-body can be used easily and freely in both large and small spaces, with an ordinary camel-hair pencil: and, if it is laid on in thin coats, it will bear a great deal of rough handling.

HENRY JONES, Jun.

VENTILATION OF SCHOOLS.

SIR,—My attention has been directed to a paragraph in your No. for June 23rd, headed as above. J. B. has described wrongly my plan of ventilation, which does not consist in boring the frames of windows and doors, neither in several 6-inch pipes in the ceiling. If this plan was used 200 years ago, it may boast of its antiquity, but I do not think it can boast of anything else.

My plan which, from personal experience of its advantages, Lord Ducie so highly recommends, is as follows; the description being taken from the *Builder*, vol. xiii. p. 414:—

"It is described as consisting essentially of two tubes, the one placed within the other, with an annular space between them, and both opening freely to the external air. The internal tube, destined to carry off the vitiated air, is placed in the chamber to be ventilated, with its downward opening near the ceiling, towards which the air, from its superior lightness, naturally rises. The annular space is intended to supply the waste, by permitting the external atmosphere to pass into the chamber. A flange checking the entering air in its downward course is introduced, to cause it to spread equally over the whole area, without producing sudden fluctuations of temperature."

I trust you will do me the favour to insert this in order to remove the impression that the plan described by "J. B." at all resembles mine.

J. MCKINNELL.

THE "ONE HOUR SYSTEM."

SIR,—With "William Ellison" I fully agree, respecting paying men by the hour, and beg to state that I have paid the men under my charge by the hour for the last twelve months, and I sincerely wish that others would adopt the same system; for I assure you it is no easy matter to bring about such a change alone, and no one in my neighbourhood has as yet adopted the *one* hour system except myself. I have been both insulted and assaulted for making the change, but now my men are as great advocates for the one hour's pay, as they were at one time averse to it; and I feel certain that were the *one hour's* pay to become more general, the nine-hours movement would soon become a thing that was.

A BUILDER'S FOREMAN.

CARRARA MARBLE.

MOONSHINE!

IN your number of June 23rd, I find the following assertion on the part of Mr. J. Bell, in a discussion on the marbles of Tuscany:—"It [the Carrara marble] was called lunar marble from its moonlight colour."

Now, I want to know if Mr. Bell has a shadow of authority for this remark, which appears to me to be pure moonshine and nothing else! In ancient times, and down to about A.D. 1300, Carrara marble was styled "*Marmor lunense;*" not from anything to do with the *moon*, but from the matter-of-fact reason that the port of shipment was the famous Etrurian city of *Luni*, *Luna*, or *Lune*, which flourished down to 1020 in a sort of way, decayed gradually between that and 1500, and was quite deserted in 1600.

Some imaginative classic, more up in his translated Vitruvius than in the pages of Facciolati or Ducange, may have taken "lunense" for "lunare," and so blundered into "lunar marble."

In Italy, from traditional habits, Carrara marble was long called "*Marmo di Luna*," but solely from the port which gave its name to that entire district—the Lunigiana.

And as to the "moonlight colour," so far from the even paleness that such an epithet would seem to indicate, no marble that I have ever seen has such a sugary, dazzling surface, as fresh Carrara.

F. E. S.

OSWESTRY CEMETERY COMPETITION.—We have received some letters of warning on this matter, but have not had time to inquire into it. Complaints are made of the course pursued by some of the competitors.

THE MAIN DRAINAGE CONTRACTS.

METROPOLITAN BOARD OF WORKS.

AT a meeting of the Board, held last week, a report from the Main Drainage Committee, containing the following, was adopted:—

"That the committee, considering the nature of the sewer works being now carried on by the contractors for the main drainage, is of opinion that it would be sufficient for the Board to retain 10 per cent. on the value of the works executed, as certified by the engineer, such certificate to be final and binding;"

And recommending,—

"That all the contractors in future be paid 90 per cent. on such value, and the balance of the amount hitherto retained be paid them, the consent of the sureties being first obtained.

That as regards Mr. Helling, who has stopped the works of the outfall sewer on the plea of his not receiving moneys due to him according to contract, he do only receive such payment on his finding a responsible and approved party to join in his contract, on the works being immediately proceeded with, and on the understanding that the certificate of the engineer shall be final and binding as to the value of the amount of work executed—the consent of his sureties being first obtained.

That it be referred to the solicitors to prepare all necessary agreements and securities to make the Board safe."

GAS.

The directors of the Faversham Gas Works having determined upon building new offices, extending the retort house and other buildings, the following tenders have been received: Mr. Lewis Shrubsole, 445*l.*; Mr. S. M. Shrubsole, 435*l.* The lowest tender was accepted. ——At a public meeting at Buckingham to consider as to the price of gas, it was stated, on the part of the directors, that some time ago they had resolved that, from September next, the price of their gas should be reduced from 7s. 6d. to 6s., and that the charge for metres should be abolished, which would leave about 5s. 6d. per 1,000 feet for the consumer to pay. It appeared that the shareholders, on an average, received about 4½ per cent. This statement seemed to give satisfaction.—— The Plymouth Gas Company, who have for some years acted steadily on the principle, recommended in the *Builder*, of reducing the price of gas in order to increase their profits, have, we understand, once more reduced their price, after, as usual, dividing 10 per cent. on their capital, the maximum dividend allowed by law. The price is now reduced to 3s. 6d. per 1,000 cubic feet.—— The Bradford Gas Company were to reduce the price of their gas from 4s. to 3s. 4d. per 1,000 feet on and after the 1st July.——At a recent meeting of the Kelso Gas Company a dividend of 10 per cent. on the paid-up capital was declared.

THE PROPOSED GARRISON HOSPITAL AT WOOLWICH.

WHEN the remaining items of the army estimates for the current year were disposed of in the House of Commons on the 19th ult., the Secretary for War took occasion to advance the somewhat startling assertion that "the Government is now building barracks that would make incomparably better hospitals than the generality of the metropolitan ones;" and then, in reply to Mr. Monsell, and with reference to one very heavy item in the estimates, Mr. Herbert asserted something like the converse of the first proposition, and gave it a special application by saying that a bad hospital, the very worst perhaps in all England, one which has been condemned for years, would make a good barrack. His words were, —"The present hospital at Woolwich is well fitted for barracks." He added, "It is proposed to build a new hospital on a more eligible site for the purpose."

One must be permitted to doubt how far it is at all possible to adopt an involved series of exceedingly small rooms to the requirements, disciplinary and sanitary, of a barrack. What was meant by a "more eligible site" than the present one at Woolwich we are now enabled to understand, as the War Department has concluded, or is about immediately to conclude, the purchase of Kidbrooke-common, with a view to the new hospital being built on it.

This common is a piece of stiff clay land, below Shooter's-hill, and just over against the new vast Greenwich Cemetery. It is so far removed from the barrack from which patients will be supplied to it, that much delay and great inconvenience must of necessity occur when the hospital is moved to this site; and the distance between the two points will also render necessary a supplementary hospital at Woolwich and a double set of officials,—an arrangement which will cause expense, embarrassment, and circumlocution.

It cannot be necessary to say one word more in condemnation of a scheme for the carrying out of which the House of Commons has, with but the faintest breath of inquiry, without a whisper of objection, with no more explanation than the very superficial one quoted, sanctioned an expenditure of 120,000*l.* of the public money.

What renders this act of supreme folly all the more deplorable is the fact, which is patent to every one who knows anything of the district, that Government already possesses, in the immediate neighbourhood of the barracks, more than one site,—two are at present unoccupied,—which, in their soil and surroundings, comply with several of the most imperative sanitary necessities, while they are free from the objections which ought to condemn the proposal to build on Kidbrooke-common.

There can be little doubt that as soon as many thousand pounds have been expended on this scheme, it will be discovered that a great mistake has been committed, and that there will be much controversy, and the seemingly inevitable array of commissioners and committees.

In view of that contingency, the courteous reader is requested to take note that a public and detailed protest, in behalf of common sense and sound sanitation, has been four several times made in these columns.

It cannot be too well remembered that this work will, in magnitude and expense, be second only to the huge blunder at Netley. There is this difference, however, that, in the course of the last five years, since it was determined to build at Netley, the sound principles of hospital construction, and the principles which ought to influence the selection of hospital sites, have obtained far greater currency in the public mind. It is understood that one site at Woolwich, in many respects suitable, has been abandoned, because a medical practitioner of great respectability has stated that, in the course of a long practice, he had met with a few cases of ague in the neighbourhood. This is an objection to which it is right to attach a certain degree of importance, but it cannot justify the preference of a site, which all the medical practitioners in the world, which any corporal of sappers, will tell you is one on which an hospital should never be built. Oddly enough, it would appear that the rejected site has been fixed on for the supplementary hospital, which will be rendered necessary by the great distance of the new large one. If one could suppose that Mr. Herbert is cognizant of all the bearings of the question, it would seem strange that he should so run counter to all that he has so ably said and done, that he should so "turn his back upon himself." If one could appeal from Mr. Herbert in office to Mr. Herbert out of office, and if the question were to be settled by the judgment, there cannot be a doubt that the sounder principles would prevail. There may yet be time to retrace an unfortunate and indefensible step. CWM.

COMPENSATION TO YEARLY TENANTS.

The Metropolitan Railway.—Some interest has been excited by the settlement of several disputed compensations to yearly tenants, by reason of the practice hitherto of coupling the 22nd and 121st sections of the Lands' Clauses Consolidation Act, the one section authorising two justices of the peace to settle all cases under 50*l.*, and the other all cases of yearly tenancy. On Thursday, the 28th ult., several parties were summoned by the Metropolitan Railway Company, before Mr. Samuel Gregson and Mr. William Griffiths, two justices for Middlesex. Mr. E. Roberts appeared for the claimants, and conducted the cases. Messrs. Burchell and Mr. F. Fuller represented the company. The first case was,—

Oborn v. *The Company*, for premises, 33, Upper Lisson-street. The sum claimed was 378*l.* 10s. The company offered 83*l.* and a further sum of 17*l.* to save litigation. The justices awarded 135*l.*, which carried costs.

Williams v. *The Company.*—This claim was 18*l.* for loss on fixtures and an improved rent of 3*l.* a year on a cow-shed in Middlesex Mews. The company had refused to make any offer, as the claimant was under notice to quit, according to their arrangement with the landlord. The justices advised the company to settle, which resulted in an offer of 10*l.* This was declined, and the justices awarded 13*l.*

Sharpe v. *The Company.*—The claimant is a working brazier and founder, also under notice to quit, expiring at Christmas. The company made no offer, but upon pressure in court proposed 30*l.* The arguments mainly turned upon the damage to the trade for the remainder of the term. Mr. Roberts urged that the notice to quit was caused by the railway works. The justices awarded 85*l.* which carried costs.

ARCHITECTS' ACTIONS.

Manton v. *Farmer.*—In this case, tried in the Wolverhampton County Court, June 23, Mr. Charles Manton, architect, of that town, sued the defendant, Mr. Joseph Farmer, butcher, Tettenhall, to recover 9*l.* 8s. 6d. for preparing plans and specifications of some new building which the defendant intended to erect at Tettenhall. Mr. Claydon appeared for the plaintiff, and Mr. Underhill for the defendant. Plaintiff's case was that, in May last year, he was engaged by the defendant to prepare plans and specifications for the erection of some new buildings to be used as a butcher's shop. He did so, and submitted the plans to Mr. Farmer, who thereupon raised a question as to the cost, saying it would make a hole in 200*l.* This was the first intimation Mr. Manton had of any limit as to price. On looking over the plans, Mr. Farmer suggested certain alterations, which Mr. Manton told him would further increase the expense; but defendant ordered them to be done. Mr. Farmer approved of the plans with these alterations, and tenders having been solicited, the lowest was from Mr. Jones, for 325*l.* Mr. Farmer cavilled at the expense, and plaintiff suggested a certain curtailment in the plans, but the defendant would not assent to this. While the plaintiff had the plans in hand to reduce them, defendant came to him and told him he should not require them. Plaintiff, being a relation of the defendant, had charged him at the rate of 2½ per cent. on the 325*l.* with two items of 16s. 6d. for preparing a ground plan of the property, and 15s. for an estimate. Mr. Underhill admitted the plaintiff had performed the work specified, and if he was entitled to an architect's fee in respect of the work done, the charge made was fair and reasonable. The whole question was whether an architect was entitled to any remuneration if he had a specific arrangement with his principal as to the amount to be spent, and afterwards exceeded that estimate in his plans. In cross-examination by Mr. Underhill, Mr. Manton said the first interview between him and Mr. Farmer took place at Mr. Farmer's house. Miss Moore, defendant's housekeeper, was present. Plaintiff positively denied that Mr. Farmer then told him he would not go beyond 200*l.* Mr. Farmer swore that, at the interview referred to, he told the plaintiff he did not propose to go further than 200*l.* His Honour said the question had narrowed itself into a flat contradiction between the parties. Miss Moore, defendant's housekeeper, was called, and confirmed Mr. Farmer's statement as to the mention of the 200*l.* on the occasion of the first interview. Mr. Banks spoke to the custom amongst architects, in accordance with Mr. Underhill's views. The judge, Mr. Skinner, accepted the defendant's version of the transaction, and gave judgment in his favour.

Sprague v. *Tomkins.*—Mr. Serjeant Parry and Mr. Digby Seymour were counsel for the plaintiff; Mr. Macnamara for the defendant.

This was an action by an architect, tried in the Court of Common Pleas July 3rd, to recover the value of certain plans made for the defendant, and relating to certain proposed alterations at St. George's Wharf at Wapping.

The defendant paid 5*l.* into court, and the plaintiff had a verdict for 16*l.*, being the remainder of his claim.

ACTION FOR DILAPIDATIONS.

BUCK *v.* HALL.

IN this action, tried in the Court of Exchequer, June 29; Mr. Montague Smith, Q.C., and Mr. Field were counsel for the plaintiff; Mr. Henry James and Mr. Griffiths appeared for the defendant. It was upon a breach of covenant to build and maintain a house in a proper state of repair.

The question was one involving all matters connected with the construction of the house, and, during the opening of the plaintiff's case, his Lordship said that it was impossible for the jury to try the cause, and the matter had better be determined by a surveyor, to whom it ought to be referred. The plaintiff not acquiescing in the suggestion of the learned Baron, the case was proceeded with, getting into a perfect maze of facts and figures, but eventually it was consigned to the fate that had been originally proposed for it, his Lordship remarking that the fault of such cases coming into court lay with the judges, who had not the courage to insist upon referring them. In the present instance an expense of at least 100*l.* might have been avoided if the case had been referred to chambers.

THE LABOUR MARKET.

AN advance of wages seems to have been very generally agreed to.

At *Wolverhampton* an advance of 4d. a day has been conceded by the employers to the bricklayers; and the carpenters and joiners have resolved to apply for the same increase. The painters are about to make a similar application.

At *Liverpool* a good many of the master joiners and carpenters are said to have agreed to allow the required half-hour each evening, and others have promised to be ruled by the majority.

The *York* joiners have gained an advance of 2s. a week, and a diminution of one hour and a half in the time of labour, from the masters.

The *Bradford* strike remains much as it was: one master, however, has been obliged to give an advance to new hands of 2s. a week in wages, and a few others have got some men on like terms; but the diminution of time has not yet been conceded, and the new works are mostly at a standstill.

At *Barnsley* the employers have agreed to give their masons an advance of 4d. a day, and labourers 2d., which has been accepted, although the requirement was 6d. to masons and 4d. to labourers. Wages wil now be 26s. for masons, and 17s. to 19s. for labourers.

The *Jedburgh* masons have struck for a rise of 2s. 6d. a week, which the masters as yet refuse to yield. The builder of the Exchange is said to give only 26s. 1½d. in Jedburgh, although he gave 28s. at Melrose just before he started at Jedburgh.

At *Hawick* the masons' wages are rising.

"ANCIENT ARMOUR" AND THE TOWER.

SIR,—You have been pleased to notice in your last number, the volumes lately published, "Ancient Armour and Weapons in Europe." Your remarks on the work itself would not have led me to trouble you with a single word; but you accuse me of the "defence, on a previous occasion, of forgeries purchased for the Tower." This is a grave charge, and I claim the right of being heard in denial. Even if I had been guilty of so foolish a thing, I am at a loss to see how a transaction of purchasing armour by the Tower storekeeper, in 1853, bears upon the publication of two volumes on military topics, by an amateur in 1860. But so far from defending the nefarious practices of vendors of spurious antiquities, if your readers will turn to your No. 522, in 1853, p. 85, they will find that I wrote a long letter in your own columns, exposing, as far as in me lay, the frauds of these dishonest traders.

On the particular object there in question (a so-called "helmet from Florence,") I did not indeed express any opinion, either *pro* or *con*, for the simple reason that I had nothing to do with the matter. But I may be allowed to add, that the very first moment an opportunity presented itself for my recording an opinion on the subject, I took care to do so. At page 31 of the Tower Armoury Catalogue, you will find the *Florentine helmet* thus described:—

"Mask burgonet, the visor in the form of a monster's head, with an ornament of wings at the sides. This helmet, *though not genuine*, is curious as an ingenious example of metal-work after the manner of the old armour-smiths."

J. HEWITT.

*** Receiving this at the moment of going to press, we are unable to add anything to what we have already said, but we may find another opportunity.

Books Received.

Transactions of the Glasgow Archæological Society. Part I. Macnab, Printer, Glasgow. 1859.

THE first part of the Transactions of the Glasgow Archæological Society has just now been printed. Articles requiring illustration have been reserved, but will probably also be published. The first paper in the present part consists of some interesting reminiscences of James Watt, by Mr. Robert Hart. While speaking of Newcomen's engine [on what authority, by the way, is Newcomen's name spelt "Newcomon," as it here repeatedly is?], the author alludes to the Marquis of Worcester's inventions, and particularly to that "engine" in respect to which the marquis says "I do intend that a model thereof be buried with me;" and as it so happens that we recently made mention of a proposal to open the tomb of the marquis in order to look for this model, let us see what an engineer of some skill and experience has said, speaking in 1857, on this subject. But first, we may remark, it is in allusion to the ninety-eighth of his "century of inventions" that the marquis hints his intention to have a model of the engine he is then briefly and obscurely treating of buried with him. That engine appears to have had the atmosphere as its first mover or primum mobile. Of the ninety-ninth he says that by it a weight of 1 lb. can raise 100 lbs. as high as 1 lb. falleth. Now, in respect to these two inventions, Mr. Hart says, "the ninety-eighth means that he has discovered a way to use the pressure of the atmosphere as a first mover: in the ninety-ninth he applies it to act on a piston whose area is equal to lift 100 lbs. by the pressure of the atmosphere. He would have a model of the air buried with him." The 100th (a waterwork engine for raising "an incredible quantity of water") Mr. Hart considers to be "composed of the other two," and to be, in fact, no other than Newcomen's engine. Into this latter question we need not here enter; but of the former we must say we think Mr. Hart's conclusion to be by no means borne out by the marquis's words. It is not a "model" of the "primum mobile" that he "would" have buried with him, but a model of "an engine so contrived" that "the working" of it is by means of a "primum mobile," or first mover, which, in fact, can be no other than the air; and this model "engine" he says he *intends* to have buried with him—not merely that he *will* have it buried with him. Moreover, if, as Mr. Hart concludes, the 100th and last invention was based upon the ninety-eighth and ninety-ninth, then, since the marquis says, "I deem this invention [the 100th and last] to crown my labours;" in all probability it was in the *form* of this crowning invention that he intended the ninety-eighth or "semi-omnipotent engine" to be buried with him, even if that ninety-eighth be supposed merely to denote a *discovery* of atmospheric pressure as a primum mobile, and not any special application of that power in form of an actual "engine," such as the 100th and crowning invention assuredly was; for the Grand Duke of Tuscany saw it at work in 1665.

Shall the New Foreign Office be Gothic or Classic? A Plea for the former. By Sir FRANCIS E. SCOTT, Bart., Chairman of the Government School of Art, Birmingham. London: Bell & Daldy. 1860.

IN this addition to the crop of pamphlets grown on the battle-field of styles, Sir Francis Scott, repeating all the arguments which have been used in favour of the adoption of Gothic as the style of the New Foreign Office, writing with considerable vigour and spirit, and putting into it the result of much reading and travel, has made an interesting and agreeable contribution on his side of the question. With all his love for Gothic architecture, he views the Greek ruins as "the relics of an architecture so true, so perfect, and so lovely, that the world can never look upon the like again!"

Against "decorators" the author is wrathful:—

"The 'decorator' [he says] is of *Cinque-cento* origin, and was first spawned, in North Italy, about 1570, in an unhealthy state of society, in an utter stagnation of popular life, at a time when architecture was corrupt in taste and deceptive in practice.

The earliest and finest known specimen is Alessandro Vittoria, of Trent.

The modern variety in this country is a compound of painter and upholsterer, of persevering habits and insinuating address, with a keen eye to colour, and a keener to profit. Their name is Legion; and although perhaps a

dozen of their leading men have very great knowledge and ability, yet their existence as a profession is, and will always be, a token of the incompetency of architects, and still more so of the ignorance of the public.

Incomparable in technical skill, their application of it is disgraceful—yet not so much to them as to their patrons; for the gifts that make the artist are prostituted to lies,—to turning lath-and-plaster into the semblance of marble, and stuccoed walls into that of porphyry and granite.

These men believe in Louis XV.: 'le style Pompadour' is the haven of their choice: they shun the deep waters of Gothic meaning, and swarm in the shallows of pseudo-classic art, as tadpoles in a pond."

Putting aside the debateable points (again and again discussed), here is a paragraph with which the majority of our readers will agree:—

"While upon the subject of architectural criticism, I cannot help regretting that the study of architecture and its history should be so neglected as it is among all classes of the general public except the clergy,—when it is evident that the question must affect us all.

The most direct and obvious method of remedying this defect, and at the same time of imparting a knowledge and love of art in general, would be, I am inclined to think, by the same sort of education in form and colour as is now given in Government Schools of Art being made a necessary part of the curriculum at all private and public schools throughout the country; which system is now pursued with most encouraging results in several large grammar schools in the provincial districts."

Again, to let Sir Francis speak for himself:—

"In ancient Greece the 'Fight for the Championship' would have inspired a Pindaric ode, instead of columns of twaddle from a *Daily Telegraph* and a *Morning Star!* And while, on the one hand, we Anglo-Saxons don't count, like the Greeks, by Olympiads, don't date our civil annals from the time when Tom Spring or Jem Ward held the belt, or from Flying Dutchman's or Blink Bonny's year, on the other hand, I am perfectly certain that there are not half-a-dozen connoisseurs and professional architects among us, who could feel the need of, and worthily appreciate the exquisite—and almost indescribable—optical refinements in the lines of their temples, which taste and education made indispensable to the fastidious eyes, not of few critics, but of entire communities of the Grecian race for century after century. And these optical corrections in columns, stylobate, and entablature,—these upward deviations, from a horizontal level, of a quarter of an inch in a hundred feet, only to be detected by our grosser sight after the nicest measurement—these we find, not only in quick-witted Athens of 440 B.C., in her Parthenon by Ictinus, in her Propylæa by Mnesicles; but at Eleusis, in Ægina, and, far away in the west of Magna Græcia, in the temple of Neptune—among the marshes of Poseidonia—in the work of colonists from material and lazy Sybaris a century before.

That such delicacies of architectural design (independent of material, for we find them with the coarsest breccia and the finest marble), were considered necessary to satisfy the æsthetical requirements of the public, among a practical people like the Greeks, is enough to fill a modern observer with positive amazement! Wonderful fellows were those citizens of Athens! shrewd men and practical—who went down every day to Piræus on their business, as we go to the City; who knew to a fraction the price of tin from Cornwall, of ivory from Egypt, and of grain from Thrace; who made time-bargains in colonial stock; who were well up to the last new dodge in chariots, and gave long prices for Thessalian hacks; who had time for arts and arms, for politics and sport; and threw their whole soul into each and all with true Athenian intensity of feeling and appreciation!"

VARIORUM.

"THE HABITS OF GOOD SOCIETY," published by James Hogg & Sons, Fleet-street, is a new book of etiquette addressed to both sexes. Although a *gentleman* is not to be made by books of etiquette, this little volume exhibits a great deal of good sense and much knowledge of human nature. There are few who may not gain something from it.——The June number of the *Gentleman's Magazine* commences a volume. It contains, amongst other valuable antiquarian matter, a tolerably full report of the late Architectural Congress at Cambridge.——The *New York Architects' and Mechanics' Journal* is pursuing its course usefully. The editor appears to find it necessary to be more elementary in its teaching than we should have thought desirable. The journal is rightly resisting the stipulation which is being made by some competition committees, that all the designs submitted shall become their property. An organization amongst architects is spoken of "to impose a wholesome restraint on the widening presumption of building committees."——The second part of "The Warwickshire Antiquarian Magazine" (Cook, Warwick) has been published. It contains several interesting papers, among which is a document respecting Kenilworth in the fourteenth, fifteenth, and sixteenth centuries, and notes and extracts from The Black Book of Warwick. Amongst the illustrations are representations of several vessels, such as flagons, used by Lady Dudley and the Earl of Leicester.——"The Streets of London, and how to make them Passable," is a pamphlet lately printed, the object of which is to urge the throwing open at once to the public of the toll bridges within the metropolitan bounds, and especially Southwark Bridge, in order to relieve the traffic along Cheapside and London Bridge, an immediate relief and advantage which we ourselves have frequently urged, and which is now absolutely and immediately necessary, even though new bridges were about to be built, which they are not.——Mr. Newlands, C.E., the borough engineer of Liverpool, has made a "Report on Horse Railways" to the chairman of the special joint local sub-committee on tramways, according to their instruction, in which an impartial review of their advantages and disadvantages is given, and the conclusions from all which are, that, so far as the traffic is concerned, the reporter sees no difficulty in the way of introducing horse railways into Liverpool; that their advantages are proved to have been great, and the evils attending them few, even under systems of monopoly and mismanagement; and that such evils he believes to belong simply to malconstruction, and easily to be avoided. The sub-committee alluded to, we may here note, have been examining models and plans in reference to the proposed introduction of such railways in Liverpool, and the general committee are about to report to the council on the subject.

Miscellanea.

ART-UNION OF LONDON COMPETITION.—In reply to the offer of a premium of 100 guineas by the council of the Art-Union of London for the best series of designs illustrative of "the Idylls of the King," forty-two sets, we understand, have been sent in. The whole will be exhibited to the public, with the works of art selected by the prize-holders, at the close of the various current exhibitions.

PORTRAIT OF THE PRINCE OF WALES.—Mr. John Watkins, the artist and photographer, of Parliament-street, had the honour of attending at Buckingham Palace on Wednesday last, and taking sittings of H.R.H. the Prince of Wales, prior to his departure for Canada. Major-General the Hon. R. Bruce, governor, and Captain Grey, equerry to the Prince of Wales, also sat to Mr. Watkins on Wednesday. The Earl of St. Germans and Major Teesdale having previously given sittings to the same artist, a series of photographs has been completed by him of the gentlemen who will officially accompany the Prince of Wales to the United States.

THE CARLISLE SURVEYORSHIP.—The Town Council of Carlisle have appointed a new surveyor in the place of Mr. McKie, who has resigned. There were in all forty-five applicants for the vacant office, from whom the committee had selected the following:—Jos. Brierley, Jos. Gordon, John Lamb, Wm. Marquis, G. F. Parfit, W. S. Rampling, and Joseph Fox Sharp. The decision eventually rested between Mr. Lamb and Mr. Gordon, who had a personal knowledge of the Carlisle sewerage and drainage, and had been incidentally recommended by the engineer who planned the town sewerage, as a very fit person for the office. Mr. Gordon was finally appointed by a majority of eighteen to twelve. The salary was afterwards fixed at 240*l.*, with an office found; 160*l.* to be paid by the local board of health, and 80*l.* by the corporation; the object of this arrangement being to ensure the surveyor resigning "the other appointment" if dismissed by either.

MEMORIAL TO THE LATE HON. MRS. LONGLEY.—The subscription window erected in the cathedral, Ripon (see p. 401), is quite honorary in its origin, and constitutes a graceful tribute to a name justly prized in that city. Dr. Longley was its first bishop, and held the see from its foundation, in 1836, till his translation to Durham, in 1856. The episcopal palace was built for Bishop Longley, who, while in occupation of the see, and a suffragan of York, rendered essential services to his aged primate, Archbishop Harcourt. The family memorial to Mrs. Longley is a mural brass, designed by Mr. Morris, and erected in the chapel at Auckland Castle, the palace of the bishops of Durham. It consists of a doubly-foliated ogee arch, of Perpendicular character, within which and the supporting shafts the inscription is displayed, and the ground not so employed is charged with arabesques. The tracery panels over the arch are enriched by seraphim, and the cornice carries bosses, on which are repeated the initials of the deceased. The side piers have, on pedestals within niches (the ground of which consists of stars relieved by azure enamel), figures of the Virgin Mary and St. John, while other compartments bear shields, executed on separate plates of gilded metal, inserted in sunk matrices, and the charges are of vitreous enamel. The two principal figures, named above, are also on separate plates, gilt, as is the one which surmounts the design, namely, our Saviour in an attitude of exhortation.

ELECTION OF ORGANIST AT THE LEEDS TOWN HALL.—After a contest for this post, before Messrs. John Goss, George Cooper (London), and W. T. Best (Liverpool), these judges have recommended Mr. Wm. Spark, of Leeds, as the person best qualified for the situation.

NEW CHURCHES AT ISLINGTON.—The foundation stone of a new church at Hornsey-rise, dedicated to St. Mary, has been laid by Mr. R. C. L. Bevan, the banker. A new church, dedicated to St. Thomas, in Hemingford-road, in the same parish, has just been completed at a cost of 4,200*l.*

A RAILWAY ACROSS THE CHANNEL.—Some new scheme, or modification of old schemes, rather, is ever turning up for a junction between England and France. It has been chiefly Frenchmen, too, who have started the idea anew. A pamphlet has been recently published, according to *Galignani*, by M. Gustave Robert, advocating the construction of a jetty across the Channel. The jetty is to rest on a colossal foundation, 10 mètres below the level of the sea, having a breadth of 154 mètres at its base, and of 88 mètres at its upper service, and on an average altitude of 22 mètres. On this foundation rests the jetty, its crest above water measuring 28 mètres across, and its base 76 mètres, with an altitude of 16 mètres from the foundation, so that it stands 6 mètres out of the water. Four double lines of rail are laid down along the crest. Two passages are to be left for ships, with ports of refuge on each side. These passages and ports of refuge are to be declared neutral, so as to secure the navigation of the Channel at any time to all nations. The materials for the construction of the jetty are to be had in abundance and cheap from the adjoining cliffs. The cost is calculated at 4,900 millions of francs.

THE MIDLAND COUNTIES ARCHÆOLOGICAL ASSOCIATION.—An excursion has been made by this Association, chiefly to view the Abbey Church of Tewkesbury, and Worcester Cathedral. A considerable party of archæologists, accompanied by lady friends, left Birmingham by a train in the morning, and were joined at the Shrub-hill Station, Worcester, by a few members of the Worcester Diocesan Architectural Society. On arriving at Tewkesbury they repaired to the Abbey Church, where the history of that fine structure, as far as it is known, was related by the Rev. C. G. Davies, vicar of the parish. After lunch the party returned to Worcester, and assembled at the College-hall, where Mr. J. Severne Walker gave an historical and architectural account of the building. He next conducted the party through the cloisters, the crypt (which was lighted up for the occasion), the Cathedral, and the Chapter-house, pointing out the principal objects of interest, and speaking approvingly of the restoration works, under the direction of Mr. Perkins, architect to the Dean and Chapter. In the evening the party dined together at the Crown Hotel, after which, Mr. Tymmyns proposed a resolution to the effect that the meeting, looking on the Guesten-hall as a most valuable record of ancient architecture, and believing that the interests of art and the honour of the city of Worcester alike require its preservation, resolve to memorialise the Dean and Chapter on the subject. The motion was seconded by Mr. Bunce, editor of *Aris's Gazette*, and carried unanimously.

CONTRACTS FOR LENDAL BRIDGE, YORK.—Tenders for the iron-work were received from the following persons:—M. Samuelson, Hull, 12,360*l.*; Bray and Waddington, Leeds, 12,000*l.*; S. and R. Carter & Shaw, London, 11,489*l.* 10s.; Cochrane, Dudley, 11,042*l.* 6s. 3d.; J. Cliff, Bradford, 10,721*l.* 1s. 10d.; J. Wilson & Bell, Newcastle, 10,700*l.*; Renard, Brothers, London, 9,388*l.*; J. Butler & Co., Stanningley, 9,312*l.*; R. Crossland, Bradford, 8,850*l.*; W. Williams, London, 8,669*l.* 4s.; C. D. Bergue, Manchester, 8,550*l.*; Head & Co., Stockton, 8,500*l.*; Close, Ayre, and Nicholson, York, 7,632*l.*; and G. J. Calvert & Locking, York, 7,298*l.* 8s. 6d. There were only three contractors for stone and brick-work, and scaffolding, viz. J. Taylor, Exeter; Bray & Waddington, Leeds; and J. Shaftoe, York, whose contract amounted to 9,390*l.* Messrs. Calvert & Locking's, and Mr. Shaftoe's, being the lowest tenders, were accepted by the committee. It will be observed, remarks the *York Herald*, that the difference between the highest and lowest tenders for the iron work amounted to 5,062*l.*, Messrs. Calverts' and Mr. Shaftoe's tender together being 16,688*l.* 8s. 6d., whereas the two highest tenders amounted to 25,560*l.* The difference between Messrs. Calverts' and the next lowest tender (Messrs. Close's) is 333*l.* 11s. 6d. We understand that Mr. Pickersgill, the city surveyor, estimated the cost at above 17,000*l.*

WATER LEAKAGE AT GLASGOW.—The Glasgow water commissioners are compelled to resort to the most stringent measures to prevent the waste of water. Mr. James Gale, the resident engineer, has made a brief preliminary examination, and the result is that in only 300 houses which he has examined there is a leakage or loss of 37,800 gallons per day, being 120 gallons per house, or 24 gallons per individual.

THE NEW CHURCH IN ST. JAMES'S.—The foundation-stone of St. Peter's, the new church about to be erected in Windmill-street, Haymarket, was laid on 25th ult., by the Earl of Derby, who stated that great difficulty had been experienced in finding a convenient site, and still greater difficulty in raising the necessary funds. He was, however, happy to say that the deficiency, which six weeks ago had amounted to 2,600*l.*, had since been reduced by 1,200*l.*

THE NEW POOR-HOUSE FOR HUDDERSFIELD.—A special meeting of the local Board of Guardians has been held to consider the tenders for the several works connected with the erection of the new workhouse at Dean House. The following tenders were accepted, subject to the sanction of the Poor-law Board:—Mason's work, Abraham Graham, 2,299*l.*; carpenter and joiner's work, Kaye & Oldroyd, 949*l.*; plumber's work, Lidster & Armitage, 420*l.*; ironmongery, Messrs. Heaps, 217*l.* 10*s.*; plastering, Thomas Longbottom, 288*l.*; slating, W. Goodwin & Sons, 210*l.*; painting, Carter & Studdard, 45*l.*

INTIMIDATION OF WORKMEN AT INVERARY.—Walter M'Naughton, stone-dresser at Mr. Hume's quarry, near Crarae, who, owing to a misnomer, was dismissed on a previous complaint, charging him and others with using threats to intimidate the stone-dressers whom Mr. Sim had brought from England and Wales, to replace those who had struck work on the question of wages, and left his employment, was again placed at the bar on a similar charge, under fresh proceedings, as being guilty of contravening the Act of 6th Geo. IV., cap. 129, entitled "An Act to repeal the Laws relating to the Combination of Workmen, and to make other provision in lieu thereof." The Sheriff-Substitute (Graham) found the complaint clearly proven, and, after adverting to the ruinous consequences that might have followed to many of those concerned by the panel's conduct, sentenced him to ten days' imprisonment, remarking that he made the period so short in consideration of his threats not having been followed up by personal violence. A party of those on strike at Crarae intimidated Mr. Sim himself, so as to induce him to allow them to go through his quarry, where they first attempted to prejudice Mr. Sim against his new workmen, and afterwards to induce the men to desert their work, offering them a bribe of 20*l.* for the purpose. It was on the new men declining to do so, on being assured of protection by Mr. Sim, that the acts of intimidation took place for which M'Naughton, the spokesman, has been punished.

THE WORCESTER DIOCESAN ARCHITECTURAL SOCIETY.—The first general meeting and excursion of this society for the present year has just taken place. The route chosen for the day's journey lay amongst the churches situated to the east of this city, commencing with Spetchley and ending with Abbot's Morton. Admission to Spetchley Church was refused by the rector on account of the "ungenerous remarks in the report of the Architectural Society on their last visit." An external examination of the church was made by some of the party, and a general opinion was expressed that the criticism was fully justified. The party next drove to White Ladies Aston, where they were received by the Rev. H. M. Sherwood and conducted to the church, and afterwards had refreshment in the vicarage. The next church inspected was that of Churchill. The Rev. George Jenkin, the curate, received the excursionists at the gate of the churchyard. Broughton Hacket, Upton Snodsbury, Grafton Flyford, North Riddle, Flyford Flavell, Abberton, and Abbots' Morton churches were afterwards visited in succession. The party had a refection at Abberton, and lunch and tea at Abbots' Morton. The altar-rails and communion-tables in all the churches visited appeared to be nearly of one common date, between the Restoration and the end of the seventeenth century. The muniment-chests appeared to be as old as the churches. The fonts were nearly all octangular, and plain. That at White Ladies Aston was believed to be the oldest, Mr. Bloxham thinking it to belong to the thirteenth century. The font-covers appeared to be of the same date as the altar-rails.

HER MAJESTY'S THEATRE.—Mr. E. T. Smith has produced, with great splendour and completeness, Webber's Fairy Opera, *Oberon*. Mr. Planché, by whom the piece was written, has superintended the production of it; and Titiens, Alboni, Mongini, Belart, and Everardi, sing the music admirably. We may speak of it more at length next week.

FAVERSHAM ALMSHOUSES.—Sir: Will you do us the favour to state in your next number that ours was one of the *two* designs selected out of the *four* chosen by Mr. Ferrey, and that that finally decided on was carried by one vote?—NEWMAN & BILLING.

BROMLEY, MIDDLESEX.—It is proposed to erect a church, parsonage, and schools in this densely-populated district, on a site liberally given by Mr. David McIntosh. The church will accommodate about 800, the sittings to be free. Messrs. Morris & Son, architects, London, are appointed to carry out the works. The style of the church will be Gothic, of the Decorated period, and it will be built of Kentish rag and Bath stone. There will also be a tower and spire, about 120 feet high.

THE DRINKING-FOUNTAIN MOVEMENT. — A drinking-fountain has been erected in front of the Bloomsbury Mission Hall, Moor-street, Seven Dials. The design is the same as that in the Regent-circus, except being surmounted by a lamp. In the place of this is an urn. At the foot of this fountain there is a dog-trough hewn out from the stone. The expense has been about 80*l.*, nearly all subscribed by poor people near the quarter.——Another fountain is being erected in the Strand, opposite Somerset House.——At Portsea, a fountain, the gift of Mr. J. Faulkner, has been opened. It comprises a bronze column, based on a block of granite. At the base of the granite a trough is cut for animals. Above the granite base is a square piece of iron bronzed, at each face of which is a design in relief, representing "Moses in the bulrushes," above which the water pours down. Four small columns also support the lamp-pedestal, at the base of which are griffins' heads. Mr. Hood, of London, cast and erected the fountain, and Mr. Absalom fixed the granite. The work cost 150*l.*

THE RESTORATIONS AT LICHFIELD CATHEDRAL. — The extensive restorations now being carried on at Lichfield Cathedral, under the superintendence of Mr. Scott, are exciting attention, says the *Midland Herald*, not only on account of their magnitude and the prestige attaching to the name of the architect, but also because of the successful manner in which the work is being executed. The magnitude of the works may be judged of by the fact that more than 11,000*l.* will be expended to complete those portions now in hand, exclusive of gifts, and leaving a considerable amount of ornamentation in abeyance. Towards this sum the ordinary fabric fund has supplied 5,000*l.*, of which 3,000*l.* have been absorbed in the restoration of the mutilated stonework in arches, vaulting, and columns, scraping of whitewash, scaffolding, stone, and materials, &c.; and the remainder in warming apparatus, double glazing the choir windows, and the expense of fitting up the nave for service. The heaviest item in the work now being carried on is that for the oak carving, which has been entrusted to Mr. Evans, of Ellastone, Staffordshire. The contract taken by this gentleman includes the bishop's throne (400*l.*), forty-two stalls, substalls, fronts to choristers' seats, &c., at a total sum of 2,030*l.* The choir screen has been confided to Mr. Skidmore, of Coventry: the expense will be 800*l.* The four side screens east of the stalls (including metal work) will cost 600*l.*; and the two pairs of gates to the north and south aisles, 160*l.* The money value of the whole floor pavement will be about 450*l.* The expenses connected with the lighting (gas-fittings by Skidmore) will probably amount to 600*l.* The organ loft having been removed, a new organ (by Houlditch, of London), value 1,000*l.*, will be placed at the angle where the choir joins the north transept. The entire expense of the works now in hand, so far as an approximate estimate can be made, and exclusive of the gifts presented, is about 6,300*l.*, to which must be added 5,000*l.*, the amount already expended by the dean and chapter, making a total of 11,300*l.* Of what is further proposed to be accomplished,—the reredos, carved and inlaid with marble, will cost 1,800*l.*; the pulpit, 250*l.*; the fald stool, 100*l.*; the sedilia, 500*l.*; grills opposite sedilia, 350*l.*; grills behind stalls, 800*l.*; canopy over dean and precentor, 150*l.* The total expense (including seats for the nave) will be nearly 5,000*l.* Nor will this sum complete the scheme: the lady chapel, the chapter-house, and the nave will still remain undone.

LAYING ELECTRIC TELEGRAPHS.—Sir: I am not a mechanician: I am merely a tradesman; and this will account for the following proposition. Supposing we had a cable to lay across a stream,—say a few miles long,—would it not do to roll that cable round an axle on shore which would revolve easily, and attach one end of it to a ship that would carry it over, and so *lay* your *electric wires*, supposing such to be the cable abovementioned? Now if that would do, why would not the same thing apply to the *Atlantic Telegraph?* Two great advantages would follow from the experiment: first, you would be in *constant communication*—the shore with the ship; and, second, supposing the rope broke, why then each side would hold its own; the vessel would return with hers, and the other part could be wound home again.—P. L.

TENDERS

For Merchant Seamen's Orphan Asylum, Snaresbrook. Mr. G. Somers Clarke, architect. Quantities supplied by Messrs. Batstone and Hunt:—

	Design A.	Design B.
Moxon	£21,820 0 0	£23,740 0 0
Mansfield	21,762 0 0	23,880 0 0
Holland & Co.	21,740 0 0	23,500 0 0
Lucas, Bros.	20,955 0 0	22,819 0 0
Higgs	20,500 0 0	22,000 0 0
Parker	20,480 0 0	24,800 0 0
Myers	19,688 0 0	21,277 0 0
Kirk & Parry	18'825 0 0	21,718 0 0

For New Blind Asylum, Brighton. Mr. G. Somers Clarke, architect. Quantities supplied by Messrs. Batstone and Hunt:—

Lynn & Co.	£5,368 0 0
Wisden & Anscombe	5,315 0 0
Fabian	4,589 0 0
Patching	4,300 0 0
Cheesman & Co.	4,200 0 0

For building a detached house on Sydenham-hill. Messrs. Banks & Barry, architects. Quantities supplied:—

Wolchman & Gale	£3,970 0 0
Papps	3,755 0 0
Dover	3,700 0 0
Richards	3,606 0 0
Beeton	3,573 0 0
Adams	3,570 0 0
Wilson	3,487 0 0
Jackson & Shaw	3,475 0 0
Patrick	3,473 0 0
Hill	3,458 0 0
Wardle & Baker	3,420 0 0
Cole	3,357 0 0
Glen	3,300 0 0
Adamson & Son	3,292 0 0
Stevenson	3,275 0 0
Pickard & Co.	3,072 0 0
Amos (accepted)	2,988 0 0

For Stapleford Abbott Church, near Romford, Essex. Mr. T. Jechell, architect, Norwich:—

Brown & Robinson	£2,729 0 0
Savill	2,324 0 0
Spane	2,262 0 0
Hammond	2,240 0 0
Beever	2,201 0 0
Dove, Brothers	2,075 0 0

For two dwelling-houses, stables, and coach-house, for Mr. A. M. Blest, Woolwich. Mr. James Harrison, architect. Quantities supplied by Mr. Arthur W. Q. Nicoll:—

		Stable Fittings. Wood.	Iron, Varnells.
Robertson	£1,995 17 0	£83 11 4	£93 6 3
Laurence	1,985 0 0	81 0 0	172 0 0
Brake	1,804 0 0	75 0 0	170 0 0
Johnson	1,776 0 0	271 0 0	for both
Tongue	1,745 0 0	56 10 0	
Smith	1,728 0 0	77 10 0	190 0 0
Little	1,593 0 0	146 0 0	169 0 0

For repairs and alterations at St. James's Church, Holloway:—

		Comb graining.	Painting walls. Four oils.
Carter	£875 0 0	£195 0 0	£30 0 0
Hardiman & Sandon	593 0 0	85 0 0	47 0 0
Browne & Robinson	468 0 0	120 0 0	50 0 0

For finishing a house, corner of St. James's-road and Roman-road, Holloway, for Mr. Goldsworthy, Westminster-road, Lambeth. Quantities not supplied:—

Corbet	£461 0 0
Seagood	449 0 0
Wiltshire	447 10 0
Starkey	359 10 0

For building six small cottages in North-street, Wandsworth:—

Notley	£790 0 0
Thornton	630 0 0
Bass	480 0 0
Stevens & Co.	450 0 0
Brazier	448 0 0

For sundry repairs, alterations, and additions to a house and premises, for Mr. R. Mathew. Mr. Pouget, architect:—

Little	£427 0 0
Humphries	398 0 0
Harding	384 0 0
Thorpe	380 7 0
Downs	380 0 0

For repairs to No. 7, Mead-place, and No. 2, Mead-row, Westminster-road, for Mr. Joseph Stearns. Mr. William Hey, architect:—

Beauchamp	£375 0 0
Knight	338 0 0